ABSTRACT

Title of Thesis: REDISCOVERING NATURE- DAYLIGHTING AN URBAN STREAM (Gwynns Run, Baltimore, MD)

Matthew James Fitzsimmons, Master of Architecture, 2004

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This thesis explores through urban design and architecture the relationship between nature and the city. The goals of this thesis are to restore (daylighting) a buried urban stream, the Gwynns Run; reduce the impact of runoff; and create an Urban Ecological Center that fosters environmental stewardship and organizational collaboration.

The Gwynns Run area of study is located in a deteriorating industrial and residential region of southwest Baltimore. The stream flows underground, below underutilized industrial buildings and a strip commercial retail center. Daylighting the stream will serve as a focus for urban renewal for adjacent neighborhoods.

The proposed ecological center will serve as a cornerstone in the urban design strategy of restoring the Gwynns Run. The center's program will exhibit and advocate for stewardship for the reclaimed watershed. The facilities will support the needs of the community, non-profit organizations and the Baltimore Ecosystem Studies (BES).

REDISCOVERING NATURE—
DAYLIGHTING AN URBAN STREAM (Gwynns Run, Baltimore, MD)

By

Matthew James Fitzsimmons

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INTRODUCTION

> "any poor man could go down to the banks of the river, armed with no more than a length of stout cord, a home-made net on a pole, and a chunk of cat's meat, and come home in a couple of hours with enough crabs to feed his family for two days." (Mencken, 1956)

Mencken's description of Baltimore in the 1880s illustrates how closely people of an industrial city lived in contact with nature. The public market houses, like Hollins Market in Baltimore, sold produce from the local farmers, just beyond the city limits. The availability of specific fruits and vegetables reinforced the consumer's awareness of changing seasons. The Chesapeake Bay was an "immense protein factory," able to supply the city with an endless bounty of seafood (Mencken, 1956).

Over a hundred years later Baltimoreans can no longer gather enough crab meat to feed a family for two days, let alone find a place to catch that many crabs in a couple of hours. The former "immense protein factory" is on the verge of a complete exhaustion. That once unlimited supply of blue crabs and oysters are nearly extinct. The conversion of natural lands into urban and suburban lands has contributed to the demise of the Bay and its tributaries.

The Gwynns Falls, a tributary of the Patapsco River and Chesapeake Bay, winds through the dense urban neighborhoods and industrial centers of west Baltimore. One hundred years ago, the Olmsted Brothers advocated for the conservation of the Gwynns Falls as a greenway, providing residents with recreational and mental relief from the growing industrial city. The City of Baltimore purchased Leakin Park to fulfill the Olmsted Brothers vision of a great urban stream valley park (Olmsted Brothers, 1904). However this vision was compromised to preserve the needs (natural resources and

dumping) of industry, particularly noticeable in the lower Gwynns Falls. The dense townhouse neighborhoods of Mill Hill and Shipley Hill developed primarily to house laborers for the local industries along the Gwynns Fall and Gwynns Run. While these neighborhoods sit in proximity to one of the largest urban forests in the United States, the connection between the city and the urban forest and stream valley are severed by industrial uses.

Today, many of these industries are deemed incompatible adjacent to either park or residential community (Operation Reach Out Southwest, 2002). Many industrial sites are abandoned or failing to maintain the property, destroying the appearance of the neighborhood and park edge. In other instances, industrial sites are direct contributors to air and, in particular, water pollution. Some residential properties back up towards the park, concealing nature and views from city residents. Access to the park is limited to rare and unpronounced entrances. The deteriorating health of the river and valley and lack of accessibility imperils the beauty and safety of the park.

Perceptions and access are changing. The Gwynns Falls Trail Project is the start of making the stream valley and forest accessible to all citizens of the city. The 14-mile long hiking and biking trail originates in Leakin Park and is expected to reach the Inner Harbor. Along the trail connections are being made to neighborhoods, cultural resources and historic landmarks. The success of this project reflects the strength of partnership between local communities, non-government and government agencies. However the current trail connections to Mill Hill and Shipley Hill are barely visible.

While the city is beginning to recognize the park as an asset, the watershed serves as a vital laboratory to urban ecologists. The Baltimore Ecosystem Study (BES) has

established the Gwynns Falls watershed as an ideal place to study the ecology of the city. This unique watershed contains a variety of environmental communities: rural lands, suburban lands, dense urban lands, along with a large contiguous urban forest. The variety of environmental conditions within a single watershed helps simplify the study of energy and matter cycling through a single ecosystem.

The relationship between the city and the park needs to change. Nature has much to offer humans and is an indispensable asset to the city. The park provides social, health, economic and environmental benefits to urban dwellers. However without proper access to a clean and safe park, nature's benison is worthless.

Harmony can be achieved between the city and the park. In order to achieve this balance this thesis explores the relationship between the city and nature. This thesis studies historical urban park development as well as contemporary design to assess the values and benefits of park land, particularly forested urban parks.

Because of the area's unique history and culture, water plays an important and contradictory role. The examined neighborhoods have a long history of abuse of their waterways (Gwynns Falls and Gwynns Run). As a convenience to local industries the watershed served as an open sewer to eliminate wastes from their site. However residents share a culture deeply connected to the Chesapeake Bay, like this summer time ritual of consuming steamed crabs and beer. Elevated levels of water contamination are destroying our environment as well as our culture.

Historic and current plans are assessed to understand the wants and needs of residents and the City of Baltimore, as they relate to the Gywnns Falls. In conclusion,

there is a demand and vision for the two neighborhoods (Mill Hill and Shipley Hill) to develop a better relationship with the Gwynns Falls and to improve its water quality.

The primary objective of this thesis is to connect the city with nature (the Gwynns Falls Park). This thesis explores three urban design strategies to connect people with their park- "Infill, Weave and Excavation." The "Infill" strategy focuses on creating a continuous, public edge between the neighborhoods and Gwynns Falls. The next strategy weaves nature into the city, blurring the edge between city and nature. The final strategy looks at excavating a part of the city to reintroduce a dead stream (Gwynns Run).

The architectural component plays an important role in the urban design, serving as a gateway between the city and the park. The program provides a place for partnership and stewardship to blossom. The proposed architecture facilitates the Baltimore Ecosystem Study as well as a community environmental center. The architectural form is determined by analysis of urban design strategies and site conditions. Similarly the architectural strategies attempt to reconnect people with the landscape- "Terrace, Courtyard, and Bridge." The "Terrace" architectural strategy attempts to reclaim steep topography as usable surface and water retention. The "Courtyard" reinforces the edge between city and nature, but allows nature to enter into the man-made world. The "Bridge" strategy serves as portal between neighborhood and nature, but also spans the Gwynns Falls.

NATURE (THE PARK) AND THE CITY

> "An urban park is useful in proportion as it is rural. The real, the only reason why a great park should be made, is to bring the country into the town, and make it possible for inhabitants of crowded cities to enjoy the calm and restfulness which only a rural landscape and rural surroundings can give…all other objects must, in a great park, be subordinated to the one central, controlling idea of rural repose, which space alone can give." (Sargent, 1888)

Mill Hill and Shipley Hill, like many neighborhoods of west Baltimore are examples of unyielding development. A sea of townhouses and gridded streets trample over the rolling topography, eliminate prominent natural features, like the Gwynns Run. Their raison d'etre was to house laborers to the 19th century and early 20th century industries. Nature had little purpose except to be consumed. The industries developed along the waterways to exploit the rivers as open sewers or as a source of power. This configuration isolated nature from humans while destroying this source of life. Now the industries are disappearing or are considered by residents a health and pollution problem. These industrial scars on the urban landscape continue to barricade nature from the residents, who live without the benefits of this amenity. While the preservation of nature was of little importance for these industrial neighborhoods, nature had helped shape American cities.

Great Parks

Nature played an important role in urban development of the United States. Thomas Jefferson believed that the independent landowner in a decentralized agrarian nation of yeoman farmers represented the ideal model for a virtuous republic. While these agrarian ideals supported an anti-urban agenda, the American city borrowed these

values and incorporated nature into the city. Nature can be found lining streets, blossoming in private and public gardens and spanning across urban parks. The values and benefits of nature became the reason for the development of great public parks, wooded public land that accommodated recreational activities. Nature in the city served as— an antidote to urban ills, a catalyst for promoting public health and sanitation, and a regional commodity and civic identity.

In the 1860's and 1870's, the American economy was shifting rapidly into an industrial market economy and the western frontier was closing. Nature was becoming a more distant part of the American life, particularly among the growing urban population. In response to nostalgia for the rural landscape and to the growing unrest among the underprivileged urbanites living in congested and unhealthy conditions; park designers placed value into the nature as antidote to urban ills. Americans began to see nature as a complementary feature to the city (Bachin, 2003). These park advocates combined the "morality and spiritual uplift" of nature with the cultural institutions of the city (Bachin, 2004, p. 13). Nature together with the city would provide morality and social order to urbanites.

Other park advocates, at this time, viewed nature as antithetical to the city. In this case the influence of nature was superior to the degrading conditions of the city. In order to combat the rigor and stress of modern urban living, people needed the "restorative qualities of nature" (Bachin 13). American park designers like Jackson Downing and Frederick Law Olmsted "showcased" nature and disguised the role of humans. Their idealized and controlled vision of nature inhibited nature from displaying any of its flaws or true conditions. What was perceived as natural was in fact an artificial creation. It

was believed that people would experience the perfection of order of nature, as in Central Park, New York, and would return to the city with a greater vision of civility.

At the turn of the twentieth century, park advocates argued that park development could alleviate conditions of overcrowding, lack of ventilation and improper sanitation. Sociologists, politicians and park advocates argued that if parks worked like "lungs of the city," more investment into parks could alleviate the physical ailments of the city (Bachin, 2003, p. 15). In the scenery of nature, urban inhabitants would have the luxury of open space, free from the confining and oppressive conditions of the city. This freedom of space allowed people to exercise and breath fresh air. Nature became an important symbol for advancing public health and sanitation. Under the tall oak and sycamore trees of Druid Hill Park, Baltimore, city residents play basketball, baseball, frisbee golf, jog, bicycle or walk. Vistas to the city center, the tall shading tree canopies, ample open spaces and picnic pavilions provide an enjoyable setting for activities and sports.

The City Beautiful movement, in the first decades of the twentieth century, advocated for park development to be a symbol of civic pride. City Beautiful advocates, like Daniel Burnham, argued that parks and nature, tools of beautifying the city, would enhance the civic life of the city, promote tourism and overall increase the financial prosperity of the city (Bachin, 2003). During this period, the development of Boston's Emerald Necklace, Philadelphia's Benjamin Franklin Parkway and Washington DC's Mall were developed. The goals of these parks served to unite the city, physically and socially. Parts of the city, neighborhoods, became linked together by large parklands. For example the paths and vehicular parkway of the Emerald Necklace unites the

residential neighborhoods together with the downtown. Frederick Law Olmsted believed promenades allowed diverse social groups to mingle without boundaries (Bachin, 2003). In the park, the city's various ethnic and social groups could mingle among each other as the pacifying power of nature eased tensions.

Similar to the monumental civic structures constructed during the City Beautiful movement, parks also served as civic symbols. The Mall, Washington D.C. and Central Park, New York City are symbols and sources of meaning for residents and visitors. The dramatic contrast between green, open space of Central Park and the dense urban land of Manhattan is visually significant, creating a memorable place. The symbolic parkland axis and cross axis of Washington D.C. connects memorials and civic edifices, but has become a symbol of the United States democracy, reminiscent of Jefferson's agrarian ideals.

Parks improve land value as well as attract businesses. William Weismantel demonstrated that the landscape frame of Boston's Emerald Necklace, a series of large parks connected by parkways, increased investment and attracted civic institutions along its greenway (1966). His study looked at changes in property value of land along the Charles River promenade and the Fens (existing parts of the Emerald Necklace), as well as property in South Boston (extinct parts of the Emerald Necklace). The property in South Boston formerly sat adjacent to a part of the Emerald Necklace, until the city developed the land for urban infill. In conclusion, Weismantel noted decreased property values in South Boston and increased property values along remaining parts of the Emerald Necklace. Also, public institutions, like museums and universities, relocated to areas along the parkway (1966).

INTEGRATION OF NATURE AND CITY

> "If we can create the humane city, rather than the city of bondage to toil, then the choice of city or countryside will be between two excellences, each indispensable, each different, both complementary, both life-enhancing. Man in Nature." (McHarg, 2)

Parks have an important role to preserve our existence on earth. Ian McHarg describes Glasgow, the industrial Scottish city, as a "grimy, gritty, squalid, enduringly ugly and dispiriting" no-place (McHarg 1969). The site of this thesis shares these similar attributes. Toil and pollution reign in the absence of nature. However to "design with nature" neighborhoods and cities will become humane places receiving benefits of nature, without compromising the cultural importance of cities.

The study of ecology and environmental science has produced a new frame to view nature. Urban ecology attempts to analyze the flow of resources in an urban ecosystem. (Grimm, Grove, and Steward, 2000). This discipline of ecology encourages multidisciplinary collaboration in order to analyze the complex workings between the city, its residents and natural systems. This holistic approach to study the environment is developing with the field of planning. The study of landscape ecology, as defined by Forman and Godron (1986) and Hersperger (1994) explores the web of connections between humans and nature. The term landscape reinforces the focus on the relationship people have with nature and vice versa. These studies reflect, as stated by Ian McHarg (1969), that the city and nature are both indispensable and complimentary of each other.

The Baltimore Ecosystem Study (BES), unlike traditional ecology, focuses on the ecology of the city, "how the aggregate parts sum, that is, how cities process energy or matter relative to their surroundings" (Grimm, et al., 2000, p. 574). Urban ecology

recognizes the integral relationships between human settlement patterns and natural systems. In order to better understand the metropolitan area as an ecological system, this collaborative scientific project is multidisciplinary, combining biological, physical with social sciences. Not only does this study look at current interactions, the BES looks at the changing conditions of the local eastern deciduous forest biome (nature) and physical conditions throughout the history of the city.

The watershed plays an important scale for ecological study. The measure of inputs and outputs can be simplified due to the watersheds clear drainage boundaries (Grimm, et al. 2000). Within the clearly defined boundaries of the Gwynns Falls watershed (17,000 ha.), the River flows through various built environments of the Baltimore metropolitan region (CITE). The dynamic collection of micro-environments (patches) along the Gywnns Falls, has made this watershed the optimal location of ecological study.

Through an understanding of the way nature operates, people are recognizing the environmental benefits of nature. The benefits include increased biodiversity, amelioration of physical urban environments by reducing pollution and controlling temperatures, and provide an opportunity to demonstrate sustainable management practices (Swanwick, Dunnett, and Woolley, 2003).

Biodiversity is the measure of species diversity in a given area. Biodiversity serves as a relative indicator for environmental quality. Nature is an intricate food chain, a complex web of predation and prey. The predator of one species is the prey to another and so forth. Contamination or severe man-made stress to a natural environment is a barrier to biodiversity. As less tolerant species die off, their predators face hardship and

potential extinction. Furthermore, toxins can move through the food chain killing species, eventually getting back to humans at the top of the food chain. Therefore, biodiversity should be encouraged and monitored to improve our cities.

Biodiversity can also heighten the aesthetic quality of a place. Activities, like bird watching, are more eventful when observers can find a multitude of species. Floral diversity, like in meadows, creates an exciting array of colors and textures.

Forested parks can help reduce urban pollution, like water contamination from non-point sources and excessive carbon dioxide levels in the air, a by-product of burning fossil fuels. Carbon dioxide is the most abundant of the eight greenhouse gases that cause excessive warming of the earth. Trees offer a solution to this environmental problem. Photosynthesis requires two products to generate energy for plants, carbon dioxide and sun. Trees, in particular, acquire and "fix" carbon dioxide in their leaves from the air. Forests hold ninety percent of sequestered carbon dioxide on the earth's surface (Moll, 1992). Increasing the quantity of trees helps reduce the accumulation of carbon-based greenhouse gases.

In 1994, the U.S. Environmental Protection Agency (EPA) declared non-point source pollution, specifically polluted runoff as the nation's leading threat to water quality (Arnold & Gibbons, 1996). Impervious surfaces prevent the penetration of water into the soil. In turn this condition increases the amount of runoff and pollution entering into our streams as well as changes the hydrology of streams (Arnold & Gibbons, 1996).

In a natural setting, like a forested area, rain lands on pervious surfaces and is absorbed into the ground. The water is cycled through the soil, where it is collected by the roots of plants, enters an underground aquifer, and/or surfaces in water channels, like

a stream, leading back to an ocean. Evaporation transports water from the surface of the earth back to the atmosphere where it becomes rain again.

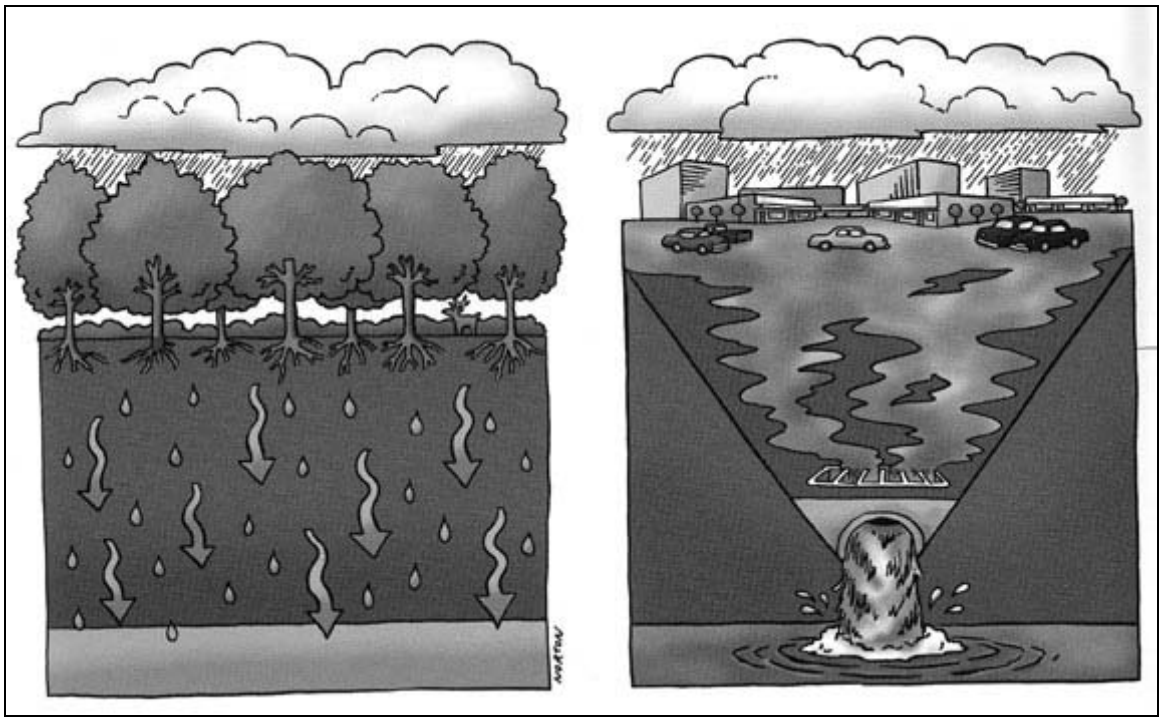

Figure 1: Cycle of Water. Left healthy/natural cycle; right unhealthy/urban cycle (Chesapeake Bay Foundation)

The impervious city is the opposite extreme of a forested area, as seen in Figure 1. Impervious surfaces, like rooftops, sidewalks and streets, break the cycle of water. Instead of being filtered, the water runs across the surface, collecting and transporting dirt and pollution. Storm water drains put runoff into a pipe, out of sight and out of mind from urbanites. These drains, as in the figure, typically pour their untreated contents into a natural body of water or man-made collection basin.

Besides serving as a vehicle for pollution, runoff increases the surge of velocity in a stream. Increased velocity can cause major damage to stream embankments, eroding slopes and vegetation, depositing silt down stream in harbors. In an undisturbed setting, plants retain soils, as well as decrease the surge of water during storms.

Finally, parks benefit the city as a cost-effective way to manage urban pollution. While cities invest in parks to provide social, economical and healthy benefits, they simultaneously invest in a sustainable future. Recreational fields and forested lands prevent erosion, runoff, control extreme temperatures, and sink greenhouse gases.

THE IMAGE OF ECOLOGY

Through the assistance of ecological and environmental science research, landscape designers have developed a new park typology, recognizing the interconnection between man and nature. The ecological park, this emerging type, shifts away from the park model that segregates nature and culture towards a new model that "conceives of humans as a part of an integrated ecological whole" (Cranz, 2003, p. 44). While the ecological park borrows the values and benefits of historic park strategies, they are designed as an integral component to the flow of nutrients and energy of cities, particularly water.

In order to improve the environmental benefits, described earlier, ecological park programs are modeled after natural processes, like the cycling of water. Older retention pond models reduce the velocity of excessive water caused by impervious surfaces, before entering into a stream. These retention basins, like a bermed grassy basin, are unaesthetic and require maintenance like removing debris from the water release point. New retention ponds use water-loving plants that are native and adapted to the region's climate, thereby reducing the cost of maintenance. These native water-loving species filter and purify water as well as prevent erosion. Furthermore these created wetlands provide habitation to native and often endangered species, like amphibians. These

created wetlands become significant and memorable moments in the park, while filtering wastewater of cities.

In addition, surface imperviousness is reduced. Parking lots are held to a minimum, but when needed are paved in a more porous material like open pavers, allowing rain to soak into the earth instead of becoming runoff.

While these parks are program driven, like to reduce runoff, their designs encourage the exploration and understanding of nature. Natural phenomenons are emphasized. Alan Sonfist's "Time Landscape" in New York City treats plant succession as an art piece (Cranz, 2003). In other situations, low impact platforms allow people to enter into a middle of an ecosystem without damaging the landscape. People are encouraged to use their all senses, not just their eyes. As people learn about the role of nature in the city, the park furthers the discussion concerning sustainability and encourages people to develop a sense of stewardship for their shared and vital landscape.

Figure 2: Time Landscape, Alan Sonfist (Cranz, 2003)

SUMMARY

In conclusion, nature in the city can provide many things to many people. For some people nature provides meaning and order, peace and tranquility, introspection and stimulus. While other people look to nature for activity and good health. Nature can act as a civic symbol and boost property value. Viewing nature and the city as integral components of a single ecosystem, designers can begin to advance the benefits of nature, particularly reducing the impact of runoff. The development of ecological parks, demonstrates the need to encourage participants of parks to become stewards of the environment.

Before discussing the role of architecture and urban design, this thesis examines the site's history and current condition. In the subsequent chapter, 'Nature Found,' pertinent design elements are discussed.

NATURE LOST

> "Big cities are condemned and decaying….and badly oppressed men live in them, knowing nothing of the divine earth which outside stands vigil and breathes." (Rainer Maria Rilke, as cited in Portoghesi, 2000, p. 470)

The history of Mill Hill and Shipley Hill charts the rise and collapse of the great industrial city. The nature and the land of this area offered earlier industrial entrepreneurs a plethora of resources, water and lumber. As industries blossomed, housing developed to shelter immigrants and laborers. The landscape was transformed from pristine and agricultural to industrial and urban. Natural resources were consumed and open space lost to development. What remains of a natural condition has been pushed to the edges of the Gwynns Falls River and adjacent steep cliffs.

The industrial and manufacturing economic engine crashed. As industries moved away or relied less on labor, the neighborhoods began to lose its people. Industrial, commercial and residential vacancies are abundant throughout this area. Industries that remain continue to contribute to the destruction of the environment or are not concerned with maintenance. Nature remains lost and inaccessible.

This chapter describes the historic and current conditions of Gwynns Falls, Mill Hill and Shipley Hill, and its environments. The first section provides insight to the changing events within the watershed, followed by the development patterns of the neighborhoods. The second section characterizes the watershed and neighborhoods. The last portion of this chapter documents and analyzes existing natural and urban conditions of this urban site.

WATERSHED HISTORY

The Gwynns Falls has been a significant boundary throughout history. Prior to colonization, the Gwynns Falls divided the Algonquian speaking tribes and the Iroquoian speaking tribes. Early colonists founded Baltimore City further east at the mouth of Jones Falls and at Fells Point. They found a landscape dominated by forests. European colonists began exploiting the land for timber and fuel and later for agriculture. The region, like most of the Atlantic Seaboard colonies, cleared 20% to 30% of the forest by the middle of the eighteenth-century.

The new Nation continued to exploit the fertility of the landscape. By the middle of the nineteenth-century 50% of the land had been cleared for agriculture, primarily grain and tobacco crops. The industrial revolution altered development along the Gwynns Falls. Industrialists harnessed the power of the river, particularly at the falls line, to fuel the mills. At the beginning of the twentieth-century only about 30% of the watershed remained forested (Gwynns Falls Watershed Association, 1999).

NEIGHBORHOOD HISTORY

At the turn of the 19th Century, millers from colonial Ellicott City opened three mills along the Gwynns Falls just north of Frederick Road. Taking advantage of the velocity of the Falls, multi-story stone buildings milled flour before producing textiles. The products of the mills were shipped three miles to the wharves of Baltimore to be exported. Just south of Frederick Road, millers lived in frame cottages, in a neighborhood called Millington Village. After the civil war this neighborhood changed its name to Mill Hill (Ryon, 1993).

Just west of the Gwynns Falls, the Gwynns Run supported what H.L. Mencken named the "abomination" of Baltimore, the Wilkens Hair Factory (Ryon, 1993, p. 72). German-born William Wilkens, a prosperous nineteenth-century businessman moved his downtown factory to a 15-acre site straddling both sides of Frederick Road, just outside the 1816 frontier of Baltimore. Many of the buildings were built in Snake Hollow, named after the presence of these reptiles on the Gwynns Run, today the site of the Westside Shopping Center. By 1880, the Wilkens Hair Factory mushroomed into a major enterprise. The industrial complex resembled a medieval fortress, buildings of massive gray fieldstones with a bridge over the Run (Ryon, 1993).

The neighborhood patriarch provided houses for German and Austrian immigrant workers. The blocks in Bentalou-Smallwood, east of Snake Hollow, developed as a German section before 1900. Tom Seeger, alleged the first brewmaster of lager beer in the city, operated the Baltimore Brewing firm between Bentalou and Smallwood (Ryon, 1993).

In 1881, at the foot of Brunswick Street, the B & O and Pennsylvania Railroad companies combined to form a large cattle yard, reputed to be Baltimore's cattle town. From here all livestock were purchased and driven into the city to the butcher shops. It is said that western-hatted cowboys were a common sight at the stores and taverns along Brunswick Street (Ryon, 1993).

The annex of 1888 incorporated Mill Hill, as well as Shipley Hill, into the City. This annex, known as the "Old Annex," added seventeen square miles to the old city, expanding the Westside three square miles (Ryon, 1993, p. 132). Catherine, Maryanna, Wilhelm and Christian are all named after the wives and sons of William Wilkens. The

neighborhood housed a mixture of hair factory workers, Frederick and Brunswick shopkeepers, farmers, and stock and brickyard workers (Ryon 1993).

Streetcar and buses supported the growth of new residential development. Pratt Street developed as a commercial street, while Wilkens Avenue became a center for doctors' and lawyers' offices. In 1912, Walter Westphal, a prominent builder, constructed the "Deck of Cards," currently the longest stretch of townhouses in Baltimore. A strong neighborhood defended its identity, when city officials attempted to change the name of Wilkens Avenue for Sunset Boulevard (1932) and then Crozier Avenue (1939). In 1939 the City Council revoked the name change (Ryon, 1993).

Figure 3: "Deck of Cards" 52 consecutive townhouses (Wilkens Avenue)

After World War II, the narrow side streets prohibited truck traffic and discouraged industrial activities, thus preserving the old residential houses. The old breweries and slaughterhouses were replaced with electronic, radio and scrap metal businesses, union halls (Ryon 1993).

Industries discouraged from locating with the 1816 boundaries of the city, developed just west of the city and along old turnpikes (Calverton Street) and country roads (Frederick Avenue). Shipley Hill originated along two rolling hills between Gwynns Falls and the path of the old Gwynns Run (Warwick and Willard). The name is

derived from estate owner and architect Charles Shipley, who built a mansion at McHenry and Franklintown Road, as early as 1802 (Ryon 1993).

German-born entrepreneurs from Baltimore developed factories along the Gwynns Run. The street names today reflect the industrialist entrepreneurs of the nineteenth-century, for example Lipps manufactured soap and glycerin products and Beck made beer. The four and two story buildings of Lipps and the towering red brick Eigenbrott brewery remain landmarks of yesteryear.

Figure 4: "Butcher's Lane"- today Franklintown Road (Ryon 1993)

German butcher shops lined Franklintown Road, known then as "Butcher's Lane." Between the butcher shops and the Gwynns Falls existed slaughterhouses. Animals were brought in from the country along Frederick Road, and their blood was drained into the Gwynns Falls. Refrigeration diminished the need for stockyards, slaughterhouses and butcher houses, but "Butcher's Lane" thrived until the 1980's.

The German community was the earliest developers of Shipley Hill. They built handsome two-story brick buildings with balconies and yards. In the second part of the nineteenth-century, the neighborhood had a German bank and casino. St. John's

Evangelical Lutheran church, known as "Butcher's Church," held services in German up until World War II (Ryon, 1993, p. 138).

After World War II, African-Americans migrated into the neighborhood, bringing a new school (Jackie Robinson Elementary, 1974) and church congregations. Mason Memorial Church of God in Christ moved into an old country church. This old church was built near the Ellicott Mills in 1867 and is thought to have been a gift of Charles Shipley. Shiloh Community congregation moved into the old German St. John's Evangelical Lutheran Church.

CONCLUSION OF HISTORY

The Gwynns Falls has been a visible frontier for different inhabitants. Prior to colonization, the River separated Native Americans. As Baltimore grew, the Falls served as a political boundary between the city and the county. Today, the River marks the limits of the old, industrial grid-iron city.

The development of this area has been characterized by piecemeal uncontrolled growth. The industrial sites were sited immediately adjacent to or on the waterways. Industries manipulated the stream's course to enhance manufacturing productivity. The waterways became open sewers, and eventually capped, as happened to the Gwynns Run.

A few country estates existed on prominent hill tops, but the majority of residential development served the local industries' need for labor. Populations fluctuated over the years. German immigrants followed by African-Americans developed ethnic majorities in this area. Currently the neighborhoods suffer from out-migration and abandonment. Connecting the park to the neighborhood will encourage new urban settlers, people who simultaneously love nature and the city.

WATERSHED CHARACTERISTICS

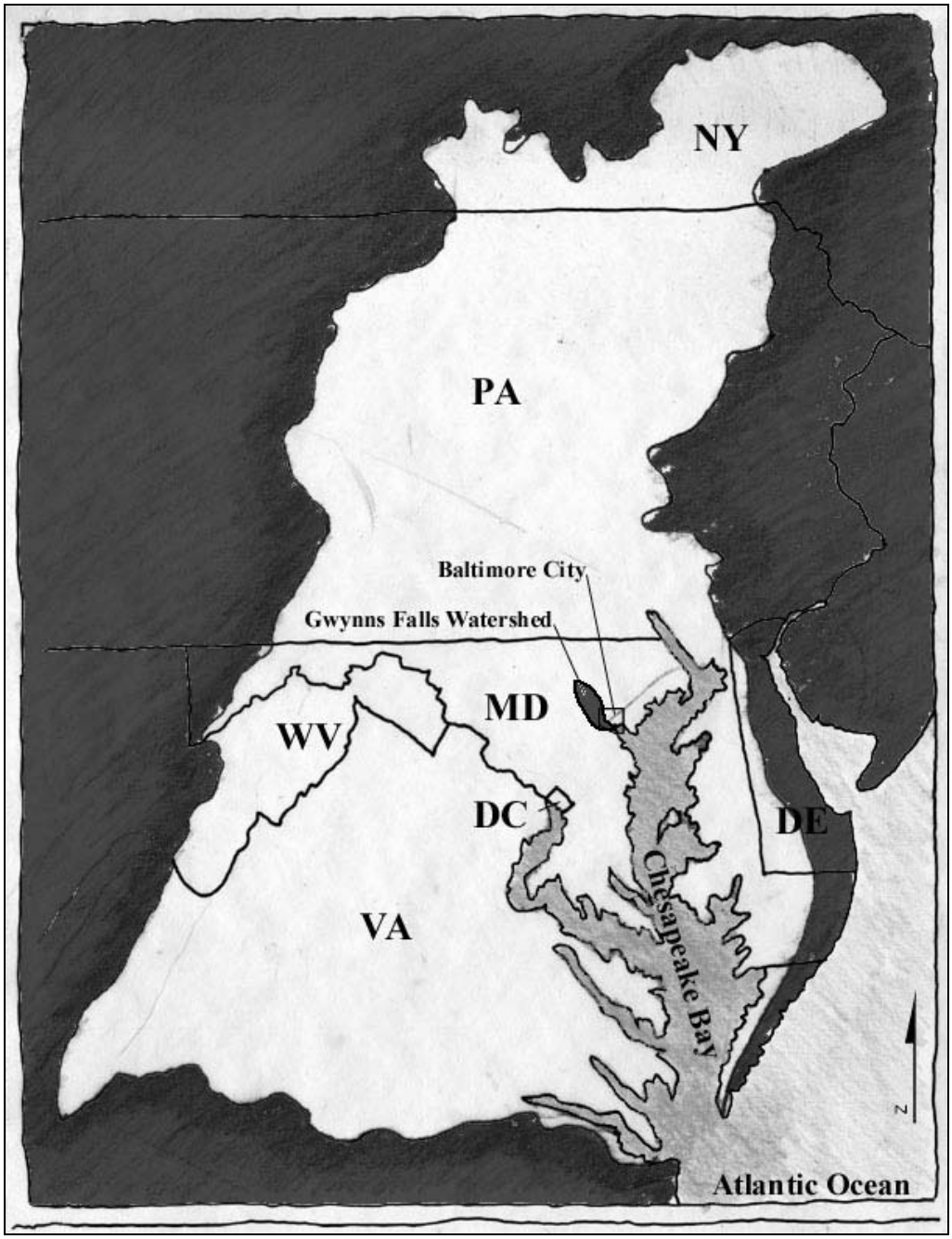

Figure 5: Chesapeake Bay Watershed- The Chesapeake Bay watershed is 64,000 square miles spanning 6 states and the District of Columbia (Chesapeake Bay Foundation, 2003). Baltimore City is situated at the northern portion of the Bay. The Gwynns Falls watershed flows along the western edge of the city towards the Bay.

MAJOR CIRCULATION:

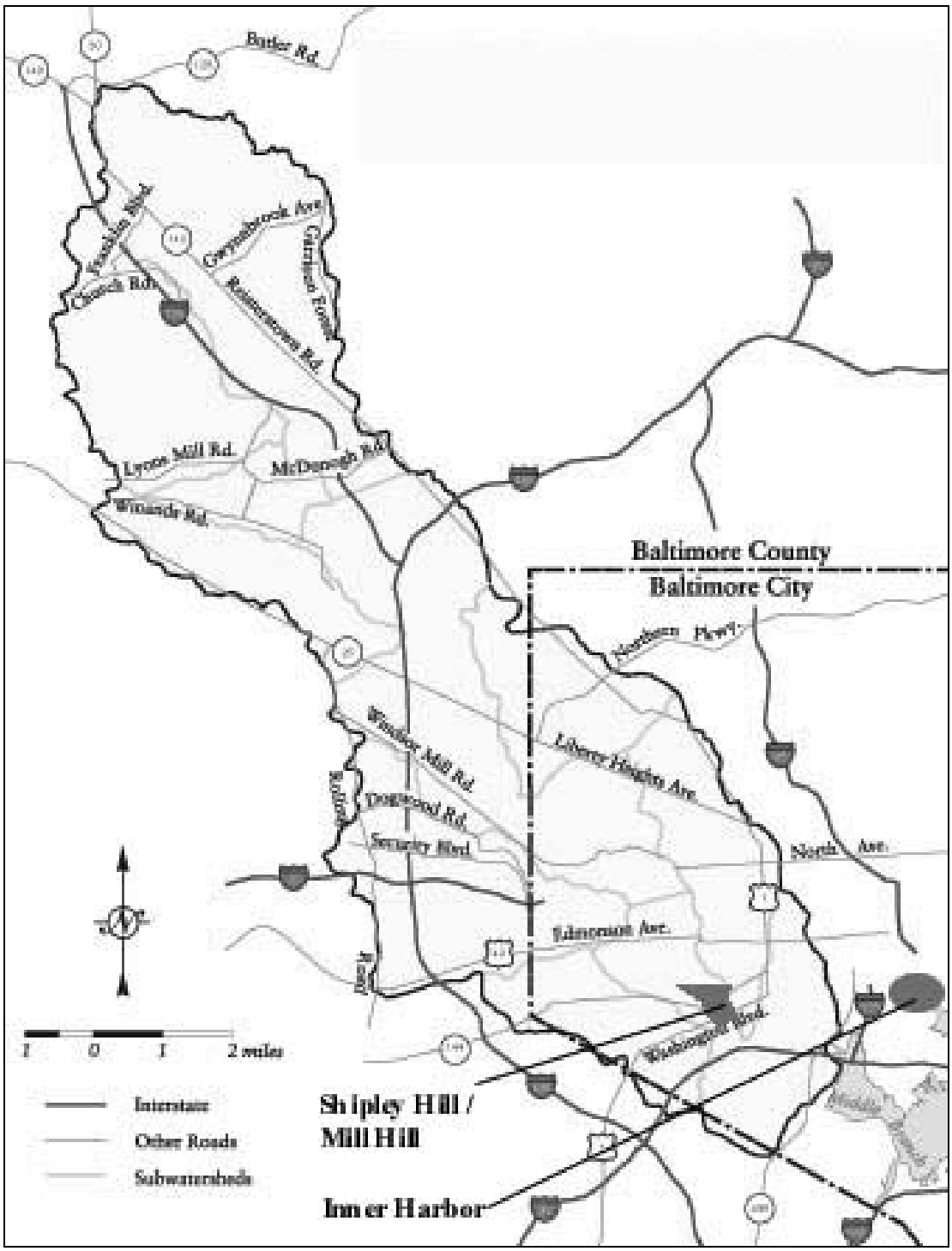

Figure 6: Major Vehicle Circulation in the Watershed (Gwynns Falls Watershed Association, 1999) The Gwynns Falls Watershed forms the western edge of Baltimore City. The head of the Gwynns Falls begins in northwest Baltimore County, just south of Butler Road. The Falls flows towards the southeastern to the Middle Branch of the Patapsco River. Between Edmondson Road and Baltimore Street, the river crosses the falls line. A series of waterfalls signifies the dramatic shift in topography.

POPULATION:

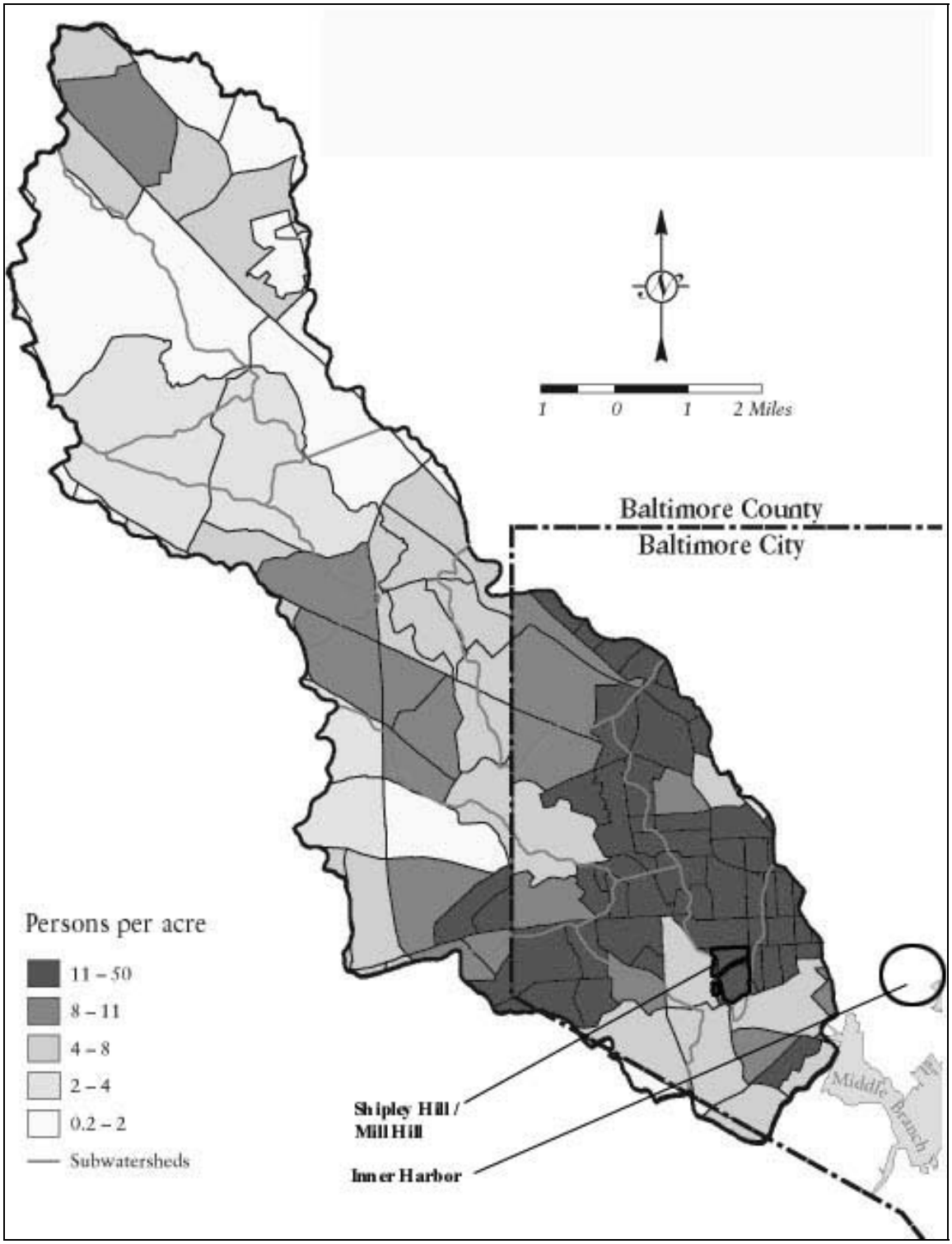

Figure 7: Population Density (Gwynns Falls Watershed Association 1999)- The watershed is home to 246,000 people (Gwynns Falls Watershed Association 1999). The population density ranges from 0.26 to 49.8 people per acre. The heaviest concentrations of people occur in Baltimore City.

SOCIO-ECONOMIC INDEX:

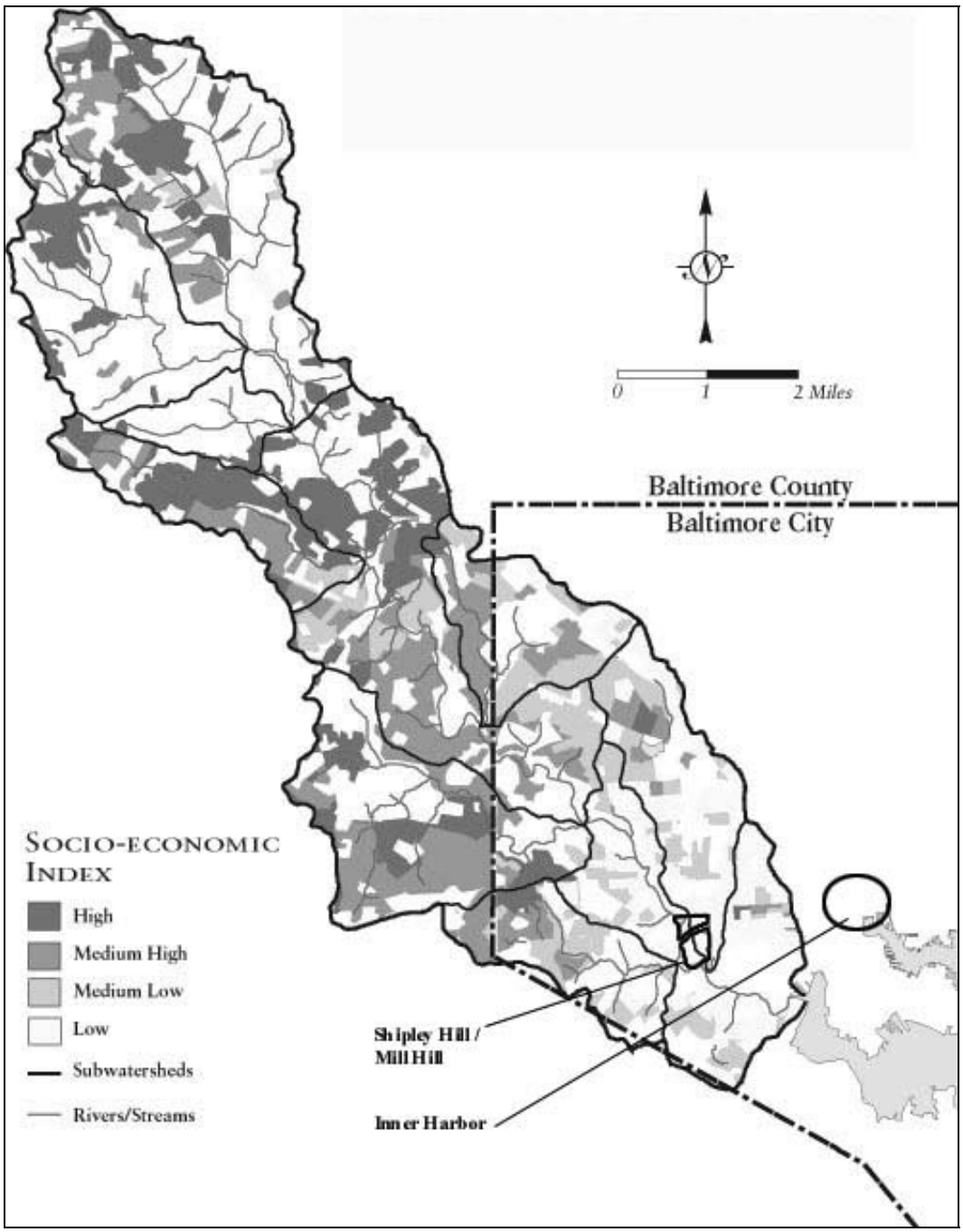

Figure 8: Socio-Economic Index (Gwynns Falls Watershed Association 1999)- "Socio-economic status is an important indicator for understanding the differences within and between human communities." The levels of income and education of a community affect its access to resources like health care and financial institutions to name a few (Gwynns Falls Watershed Association, 1999). Lower index values indicate residential populations deficient in basic needs like adequate housing. These people are probably more concerned about solving their basic needs than water quality concerns. Simultaneously, people without resources to adequate healthcare are perhaps more affected by detrimental environmental conditions. Servicing this area with green spaces and healthy streams will help reduce negative environmental impacts.

MILL HILL & SHIPLEY HILL CHARACTERISTICS

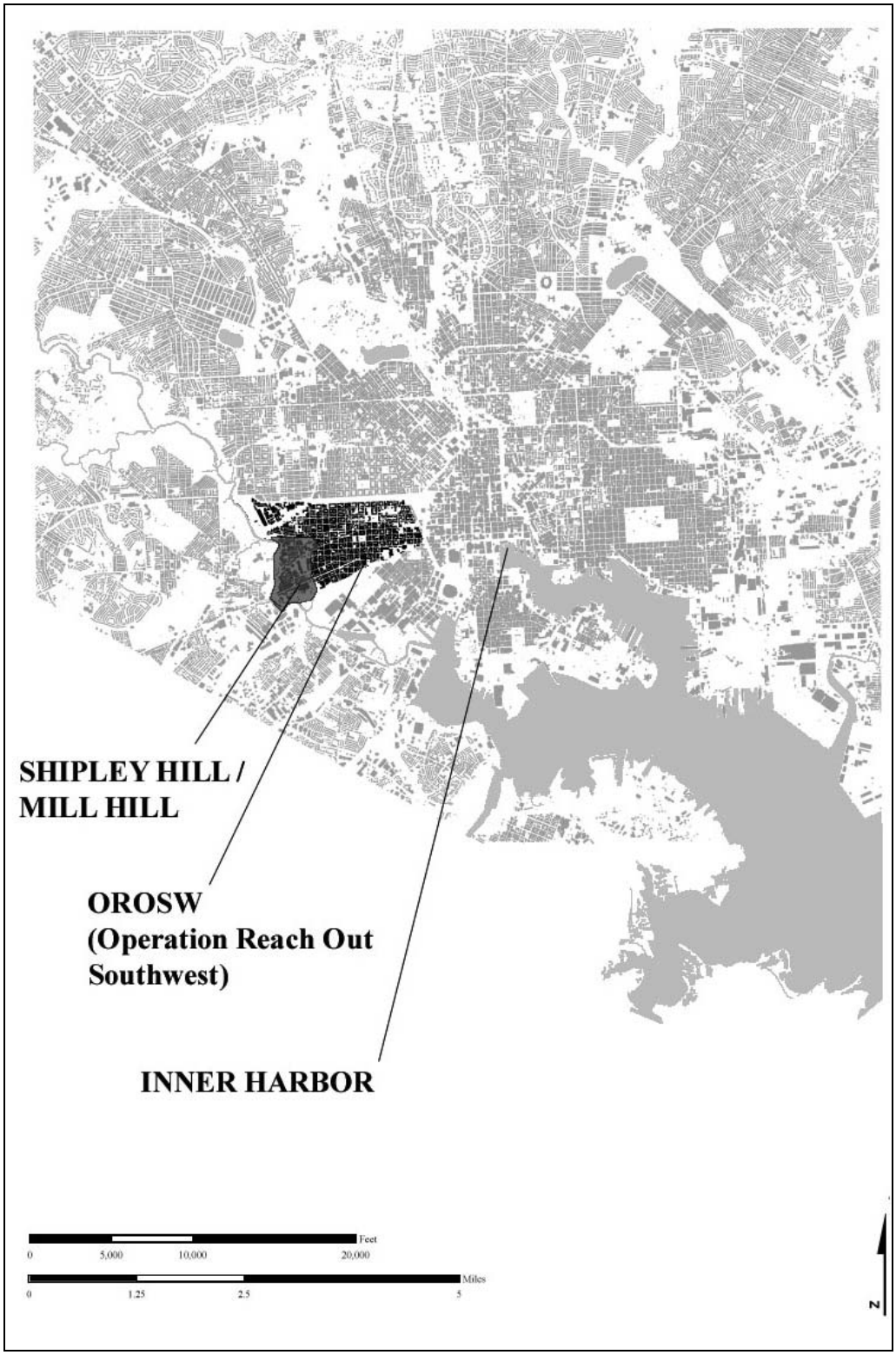

Figure 9: Plan of Baltimore: showing Southwest Baltimore and Shipley Hill / Mill Hill

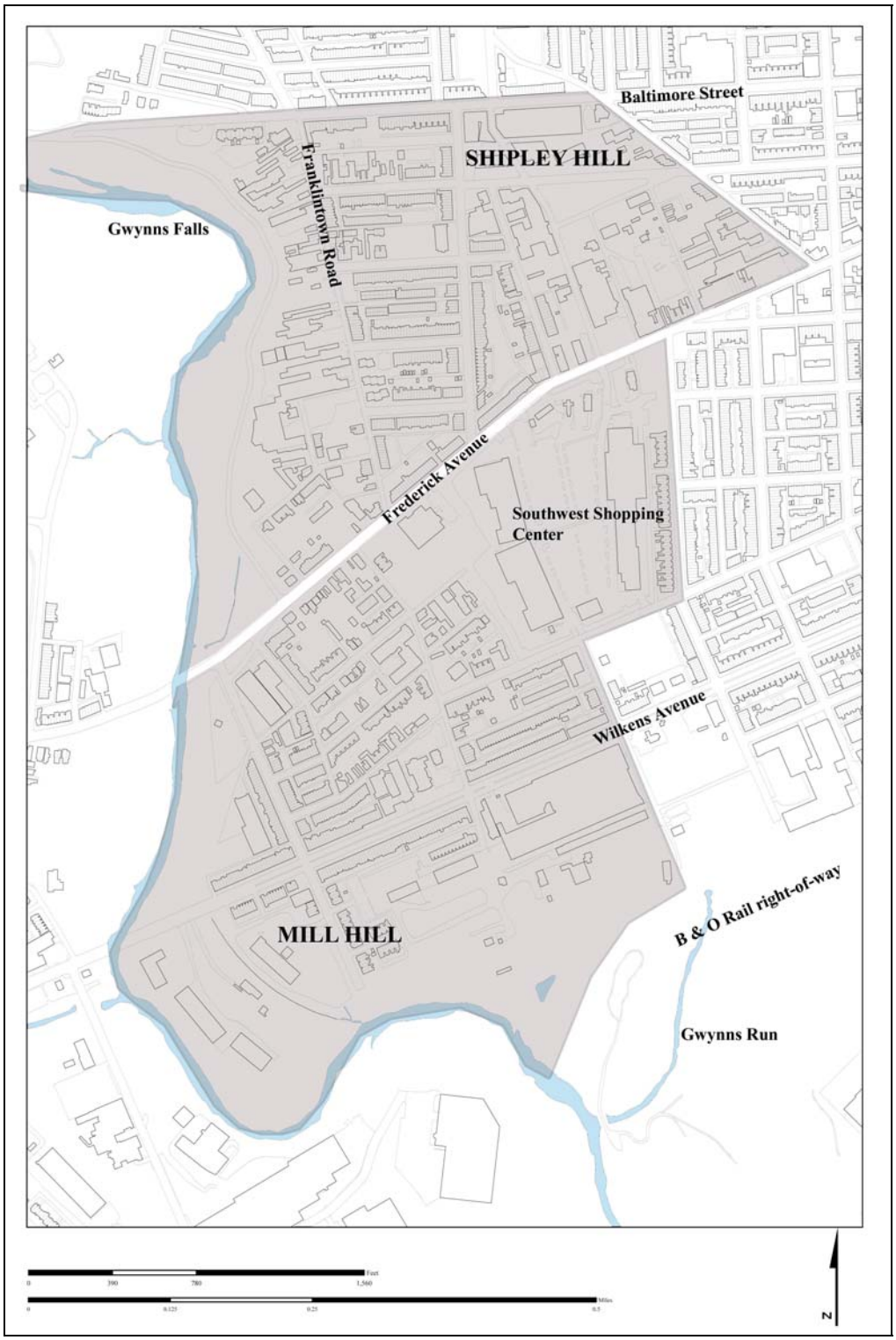

Figure 10: Shipley Hill & Mill Hill Neighborhoods- Mill Hill is the most southwestern neighborhood of the Baltimore City planning area called Operation Reach Out Southwest. The neighborhood sits south of Frederick Road, east of the Gwynns Falls, north of the B&O railroad right-of-way and west of Catherine Street. Shipley Hill sits north of Mill Hill. The Gwynns Falls defines the western frontier, Frederick Road to the south, Calverton Road to the east and north and the Amtrak railroad right-of-way to the north.

DESCRIPTION OF CURRENT RESIDENTS:

There are approximately 21,000 residents living in Southwest Baltimore, as defined by the OROSW planning boundaries. In 2000, Mill Hill had a total population of 1,850 people and Shipley Hill had a population of 2,454 people. Between 1990 and 2000, Mill Hill's population decreased by 4.5%, while Shipley Hill's population decreased by 33.3%.

Sixty-five percent of the population in Mill Hill is white, while Shipley Hill's population is predominately black (95%). Between 1990 and 2000, Mill Hill under went demographic changes. The exodus of whites (-613) has outpaced the immigration of blacks (+461).

The population is getting older. In 2000, there was an increase in the percentage of elder persons (ages 35 and over 65) living in ORSOW (47.9% of the total population). The percentage of young adults living in ORSOW decreased to (22.3% of the total population).

In 1990, only 42.6% residents living in OROSW over the age 25 were high school graduates. In 2001, the dropout rates for area high schools are 11.78% (Southwestern High) and 16.16% (Francis M Wood Alternative School).

The median household income for Southwest was $15,674, which is below the citywide level of $24,045. The median household income along the Wilkens Ave corridor (census tract 200500) is $20,396, while the median household income north of Frederick Road (census tract 200400) is $13,365. The percentage of people living in poverty is greater north of Frederick Road (46.03%), in comparison to the Wilkens Avenue corridor (22.06%). Roughly 55% of the persons between the ages 16-64 are in the labor force.

TOPOGRAPHY**:**

Figure 11: Topography (25' intervals)- Mill Hill sits atop a small knoll at the end of a ridgeline that divides the existing Gwynns Falls and the non-existing Gwynns Run. Shipley Hill sits along the ridgeline running north from Mill Hill. The Gwynns Falls carved steep slopes on the western edge of the two neighborhoods. Compacted soils, like impervious surfaces, are too dense to absorb water. Likewise, trees are unable to grow natural and expansive root conditions**.**

HYDROLOGY**:**

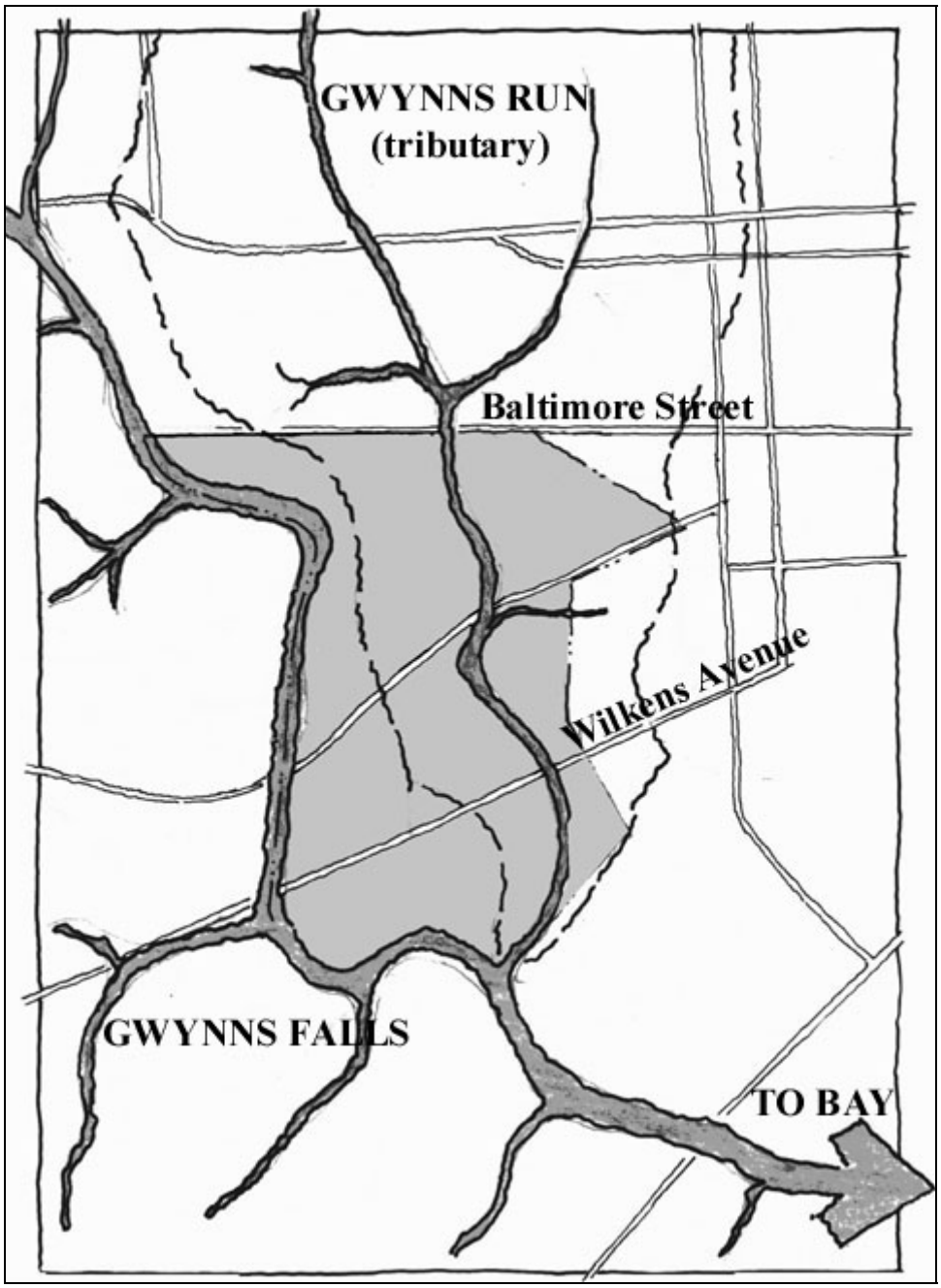

Figure 12: Gwynns Falls Hydrology (Note: The Gwynns Run does not exist)- From the ridgeline Franklintown Road and Millington Road, water drains either towards the west and south towards the Gwynns Falls or to the east towards the urbanized valley (formerly the Gwynns Run). The former Gwynns Run is highly impervious with old industrial uses, surface parking for the Westside Shopping Center. Polluted storm water is piped and dumped into the Gwynns Falls. Water flowing directly into the Gwynns Falls has some opportunities to be naturally filtered. However for the most part there lacks a natural buffer between the urban land and the Gwynns Falls. Steep slopes do not absorb water as adequately as flatter land. While precipitation may clean the streets of the neighborhoods, the dirt is directly deposited into the waterway.

SUN, WIND AND WEATHER:

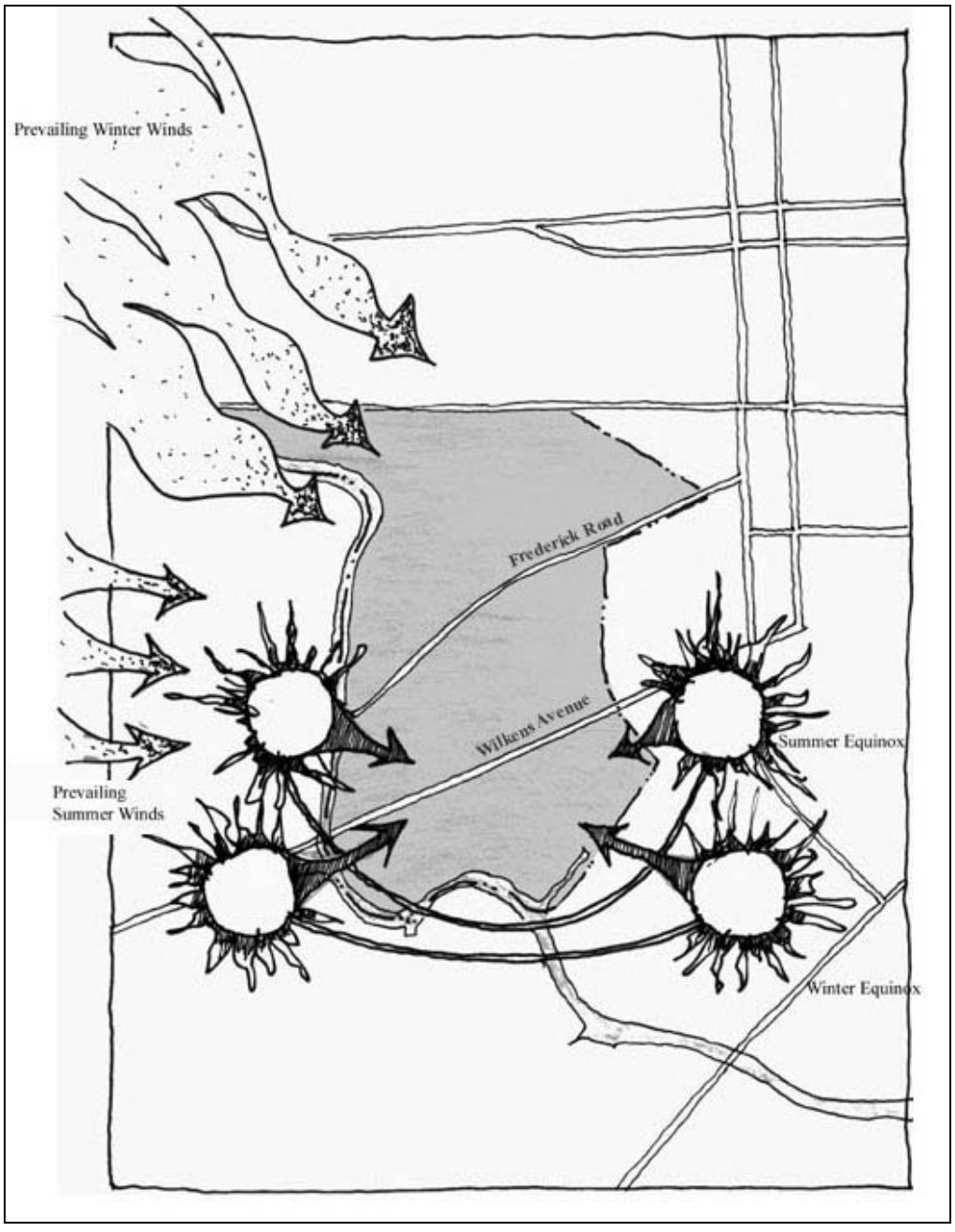

Figure 13: Prevailing Wind and Sun Orientation- At the Summer Solstice, the path of the sun has the greatest arc, extending roughly 120 degrees east and west of south. At winter solstice, the path of sun has an arc extending from 60 degrees east and west of south (Brown, 1985). The average radiation on a horizontal surface is estimated at 664 btu/sqft in January, 1320 btu/sqft in March, 2078 btu/sqft in June and 1377 btu/sqft in September (Brown, 1985). The winter and early spring winds are the stronger winds (10-11 mph from the WNW). The average velocity of summer and autumn winds is about 8 to 9 mph from the west (Weather Underground, 2004). There are diurnal changes in the wind, because air rises when warmed. Daytime winds flow up valleys and from the Bay, while night breezes flow down valleys and towards the Bay (Brown, 1985)

	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec
High Temperature (F / C)	40 / 5	44 / 6	54 / 12	64 / 18	74 / 23	83 / 28	87 / 31	85 / 30	78 / 26	67 / 20	56 / 14	45 / 7
Low Temperature (F / C)	23 / -5	26 / -3	34 / 1	42 / 6	53 / 11	62 / 17	67 / 19	66 / 19	58 / 15	46 / 8	37 / 3	28 / -2
Precipitation (in / mm)	3 / 78	3 /79	3 /86	3 / 78	4 / 94	4 / 93	4 /94	4 / 100	3 / 87	3 / 76	3 / 84	3 / 87
Snow (in / cm)	5 / 12	5 / 12	1 / 2	trace / trace	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	trace / trace	1 / 2
Wind Speed (mph / kmh)	10 / 16	11 / 17	11 / 18	11 / 18	9 / 15	9 / 14	8 / 13	8 / 13	8 / 13	9 / 14	10 / 16	10 / 16
Wind Direction	WNW	WNW	WNW	WNW	West	West	West	West	West	West	WNW	WNW
Cloud Cover (out of 8)	5	5.1	5	4.8	4.9	4.6	4.5	4.5	4.4	4.2	4.8	5.1

Table 1: Monthly Weather Averages (Weather Underground, Inc. 2004)- The average high temperature ranges between 85 F in the summer to 40 F in the winter. The average low temperature ranges between 67 F in the summer to 23 F in the winter. The summer tends to be the wettest season with August having the highest monthly average (5 in / 100m), while autumn and winter tend to be the drier season with October recording the lowest monthly average (4 in / 76 mm) (Weather Underground, 2004).

LANDSCAPE PLAN:

Figure 14: Landscape Plan (Gwynns Falls Trail, Tree Coverage and Open Spaces)- The predominant clusters of trees line the Gwynns Falls River. Other large stands of forest occur in interstitial

spaces between large transportation infrastructures, like the railroad tracks. Open spaces range between large urban parks (Carroll Park), residential urban squares, athletic and playgrounds (school properties) and cemeteries. The Gywnns Falls Trail from Western Cemetery to Frederick Avenue runs on top of the old Ellicott Driveway, the former mill run. At Frederick Avenue, the trail crosses the Falls, and then crosses back on Wilkens Avenue. South of Wilkens, the trail runs along the River's bank, crossing the river once. At Washington Boulevard, the trail follows the street towards Carroll Park on its way to the Inner Harbor.

FIGURE GROUND:

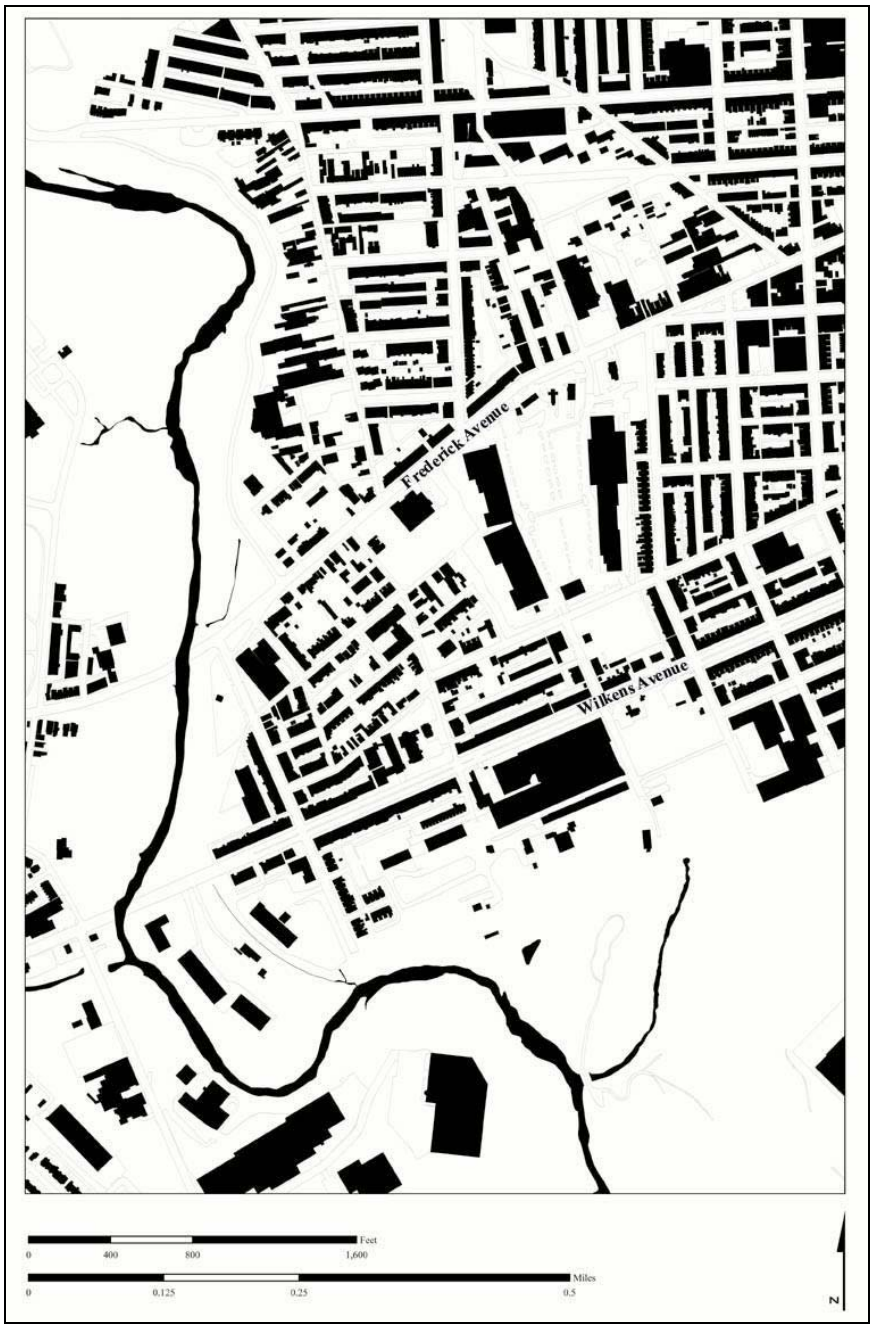

Figure 15: Figure-Ground Diagram- The figure-ground illustrates the area's urban collage of various building textures and open space patterns. Streets tend to be the predominant public space, in addition to a few pocket parks. There is a large void that follows the Gwynns Falls. The larger footprints tend to indicate industrial, commercial and institutional uses, while thin bars typically indicate the ubiquitous townhouses. The largest footprints reflect the current trends in commercial and industrial construction.

IMPERVIOUS SURFACES:

Figure 16: Impervious Surfaces (underestimated: does not include sidewalks and impervious yards)- Impervious surfaces provide an indication to the quality of water and health of a stream (Chester, 1996). High levels of imperviousness indicate environmentally detrimental levels of runoff. While Figure 18 represents the extent of impervious surfaces in the two neighborhoods, it underestimates the true coverage of imperviousness. Sidewalks, impervious yards, driveways and compact soils are not taken into consideration. If these conditions were considered, then almost all of the area would be considered impervious. Imperviousness is an ubiquitous feature which creates a serious challenge to reducing runoff.

LAND USE-ZONING:

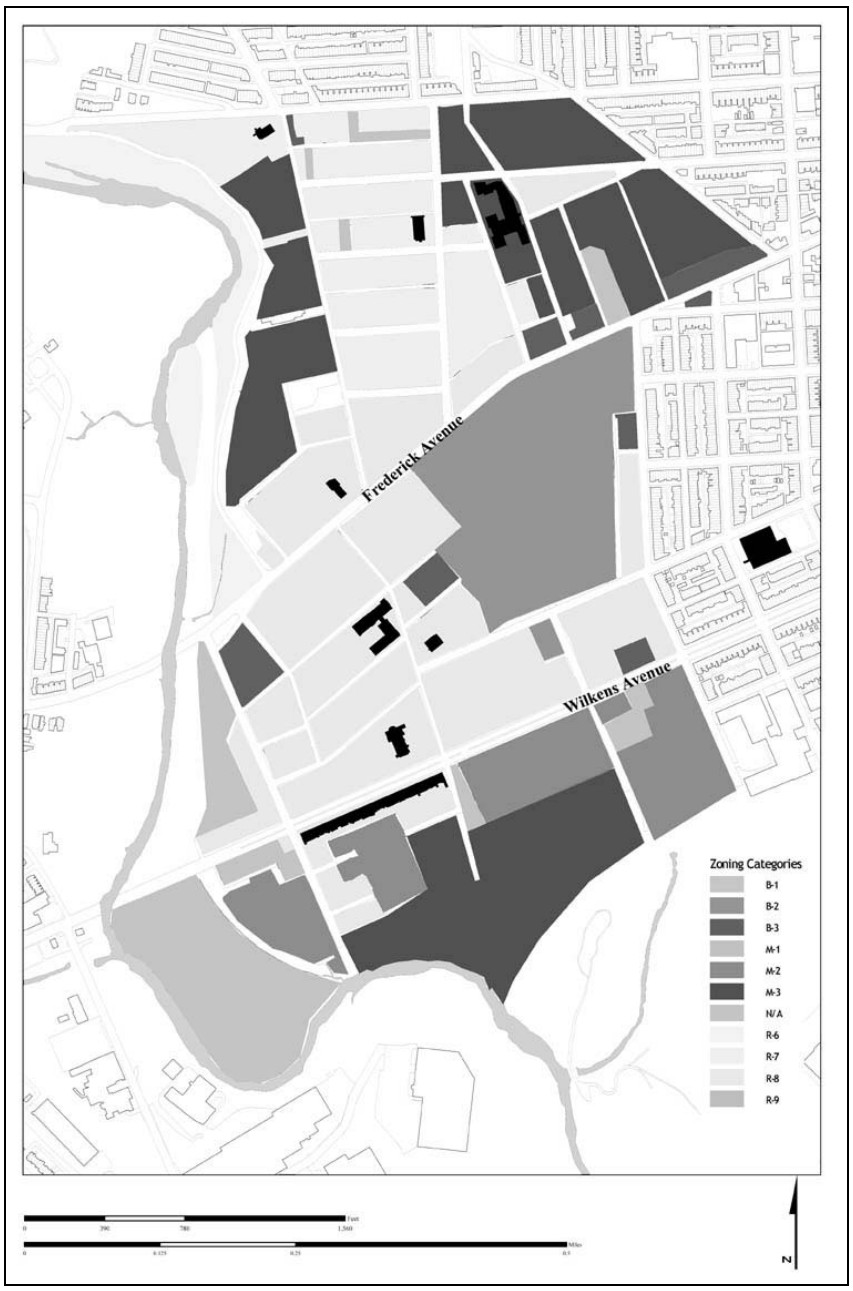

Figure 17: Land Use, w/ Landmark Buildings (OROSW, 2002)- Industrial zoned (M) land is typically found between residential pockets and the Gwynns Falls and the B & O Rail right-of-way. Industrial lands are found north of Frederick Road along Warwick and Calverton Road. Two different types of commercially zoned (B) lands are located in this area. The "Neighborhood Commercial District" (B-1) satisfies the daily needs for adjacent neighborhoods. This activity is found along Frederick Road and Pratt Street. The "Community Business District" (B-2) is the strip Westside Shopping Center. This zoning satisfies daily and occasional needs for a larger consumer base, than the "Neighborhood" (Baltimore City Dept of Legislative Reference, 2002). The predominant residential zone is classified as R-8. The following uses are allowable: single family attached dwellings, multiple family detached dwellings, multiple family attached dwellings, clubs and lodges: nonprofit, and hospitals. The most common residential form is the single family attached dwelling.

ASSETS:

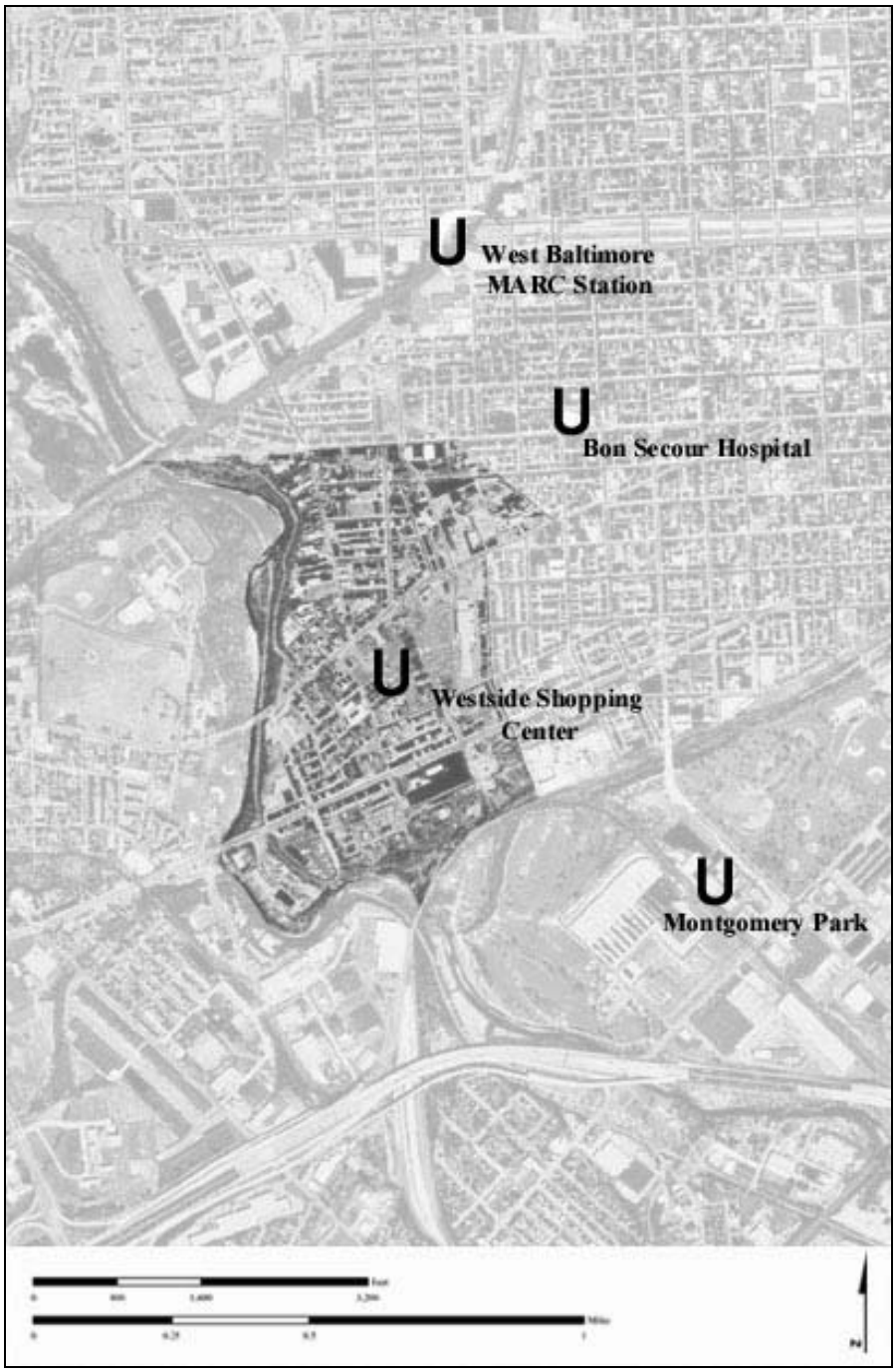

Figure 18: Assets (OROSW 2002)- The OROSW Strategic Neighborhood Action Plan considers four locations to be assets to the area. The West Baltimore MARC station gives access to commuter rail service between Baltimore and DC. Bon Secour Hospital is the closest large health care provider. The Westside Shopping Center is the largest auto oriented retail center in this area. Montgomery Park, the redevelopment of the Montgomery Wards building, leases space to Maryland Department of Natural Resources. The building features a green roof and a spacious atrium. This project's green roof is an example of how architecture can reduce impervious surfaces.

LANDMARKS:

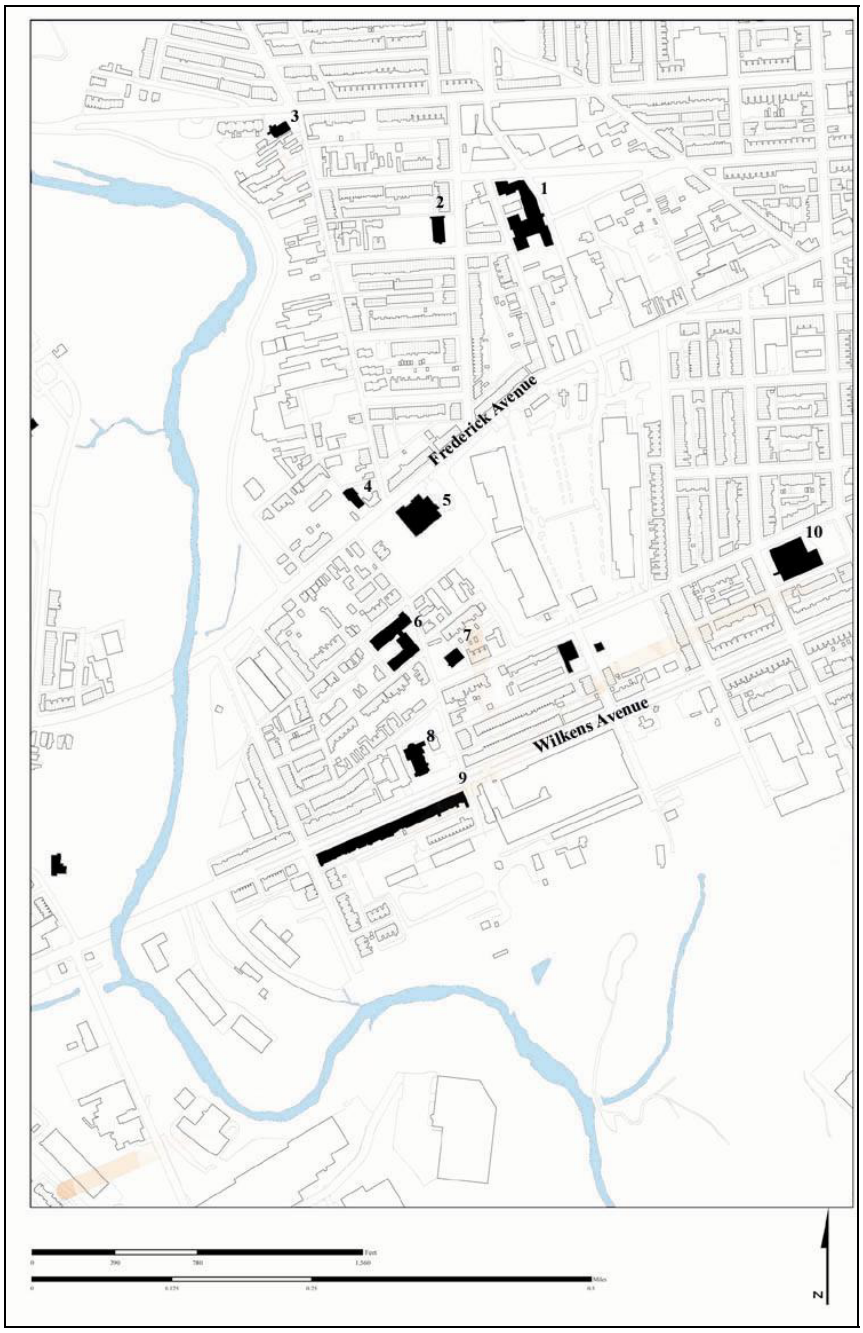

Figure 19: Landmarks (OROSW 2002)- Landmarks are points of reference that are typically defined as an object, like a building, sign or mountain. They provide distinction and orientation in an environment full of possibilities (Lynch, 2000). Landmarks can serve different scales in the city. From various points in the adjacent areas of West Baltimore, the lofty Italianate St. Benedicts Roman Catholic Church (8) and bell town can be viewed puncturing the horizontal skyline of a horizontal city. In addition to its position on a hilltop, its orange-red brick and terra cotta roof amplifies the church's visibility.

The Eigenbrott brewery (1) and Shiloh Community Congregation (2) soar above the small two-story townhouses and flat industrial buildings of Shipley Hill. They have limited visibility because of their location in the industrial valley, east of Franklintown Road. At the street scale of the city, a handful of other churches (3 & 4), schools (5 & 10) and unique buildings, like the Deck of Cards (9) provide a more localized sense of landmark. An old column marks the entrance of the Gwynns Falls Trail on Frederick Road. The old public school house (6), now a retirement home, has a prominent height above the adjacent townhouses in Mill Hill. Beyond this area, the Carroll House, B & O roundhouse, Montgomery Wards building, Cardinal Gibbons High School and the downtown skyline act as cues of orientation for people within the Mill Hill/Shipley Hill neighborhoods.

EDGES:

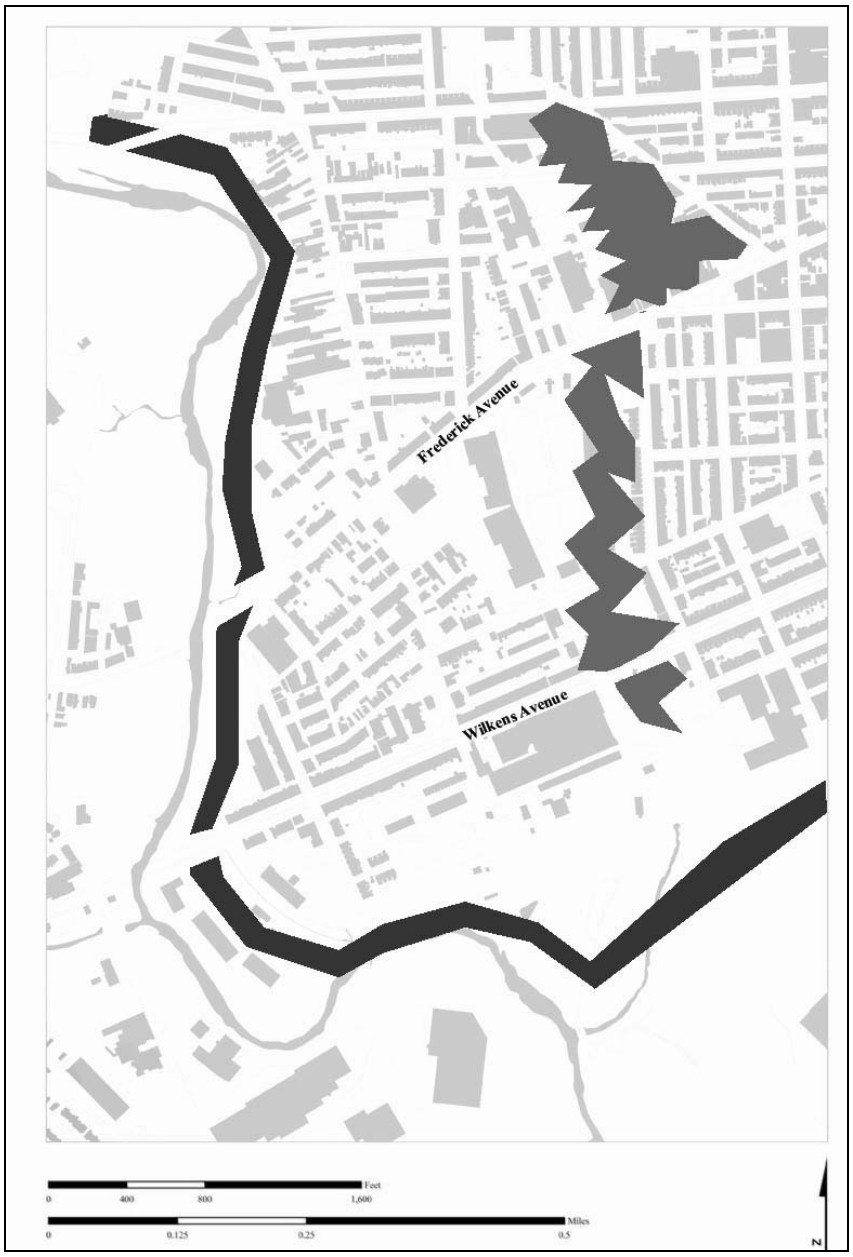

Figure 20: Edges (natural edge to the east; man-made to the west)- Natural conditions and railroad right-of-ways define the western and southern edges of Shipley Hill and Mill Hill. The Gwynns Falls and the steep slopes carved by the river create a clear natural edge to Southwest Baltimore. Only at three points can this barrier be breached—Baltimore Street, Frederick Avenue and Wilkens Avenue bridges. The B & O Railroad tracks create a southern edge of Southwest Baltimore, while the Amtrak lines define the northern edge. The broken street grid of old industrial buildings and the Westside Shopping Center east of Franklintown Road creates a void that separates residential communities of Boyd-Booth and Carrollton Ridge from Shipley Hill and Mill Hill.

SOFT SITES:

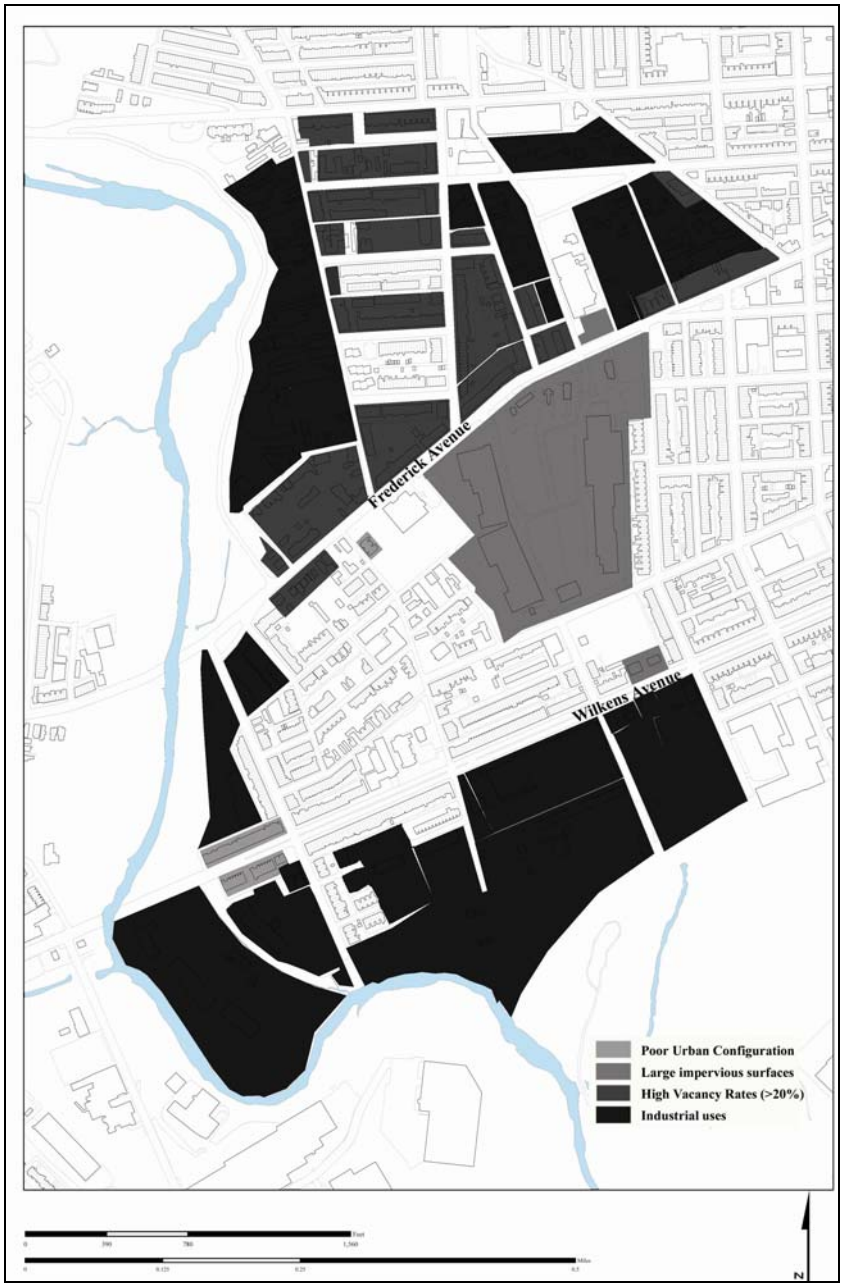

Figure 21: Soft Sites (buildable sites)- Soft sites are properties that are deemed mutable, by this thesis, for future uses. The criteria for soft site are industrial sites (potential environmental threats), vacancy, large impervious surfaces, and poor urban configuration. Industrial sites are generally considered soft, as recommended by the OROSW Strategic Neighborhood Action Plan, since many of the sites are vacant or incompatible with residential land uses (2002). Blocks with high vacancy rates (20% or more of the dwelling units vacant) are considered soft (OROSW, 2002). A dashboard observation confirmed the selection of vacant blocks. Empty impervious surfaces are considered soft. Poor urban configuration includes properties that do not conform to the street edge or have the potential for a better use or form.

REGIONAL CIRCULATION:

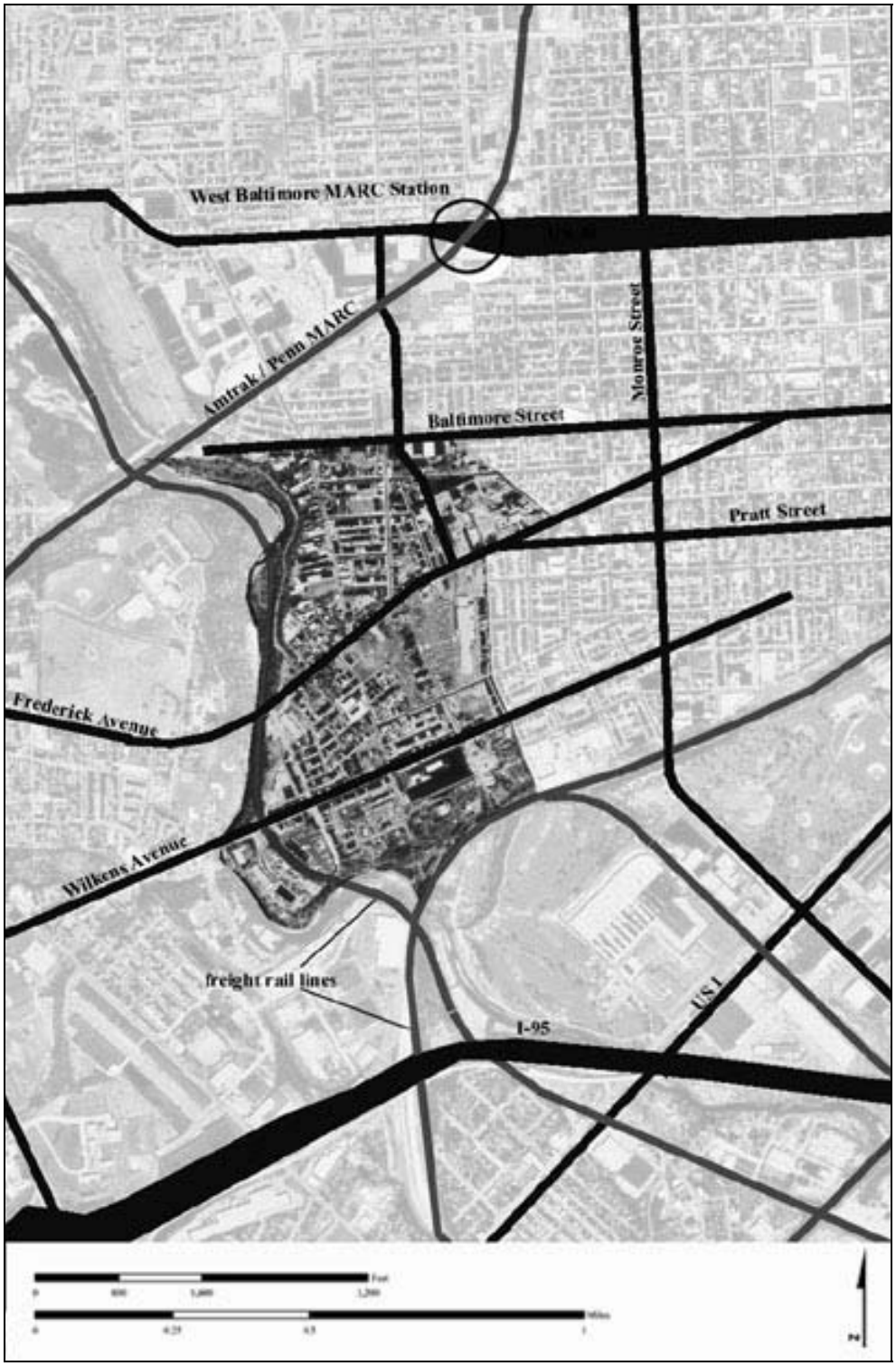

Figure 22: Regional Street and Rail Network- Wilkens Avenue (alt US 1), Frederick Avenue, I- 40 and US 1are primary corridors connecting the downtown with southwest suburbs, like Catonsville. I-95 is major arteriry between Washington DC and Baltimore. Along I-40, the commuter rail service MARC, has one of its two city stations. The rail service connects DC and Baltimore.

LOCAL TRANSIT:

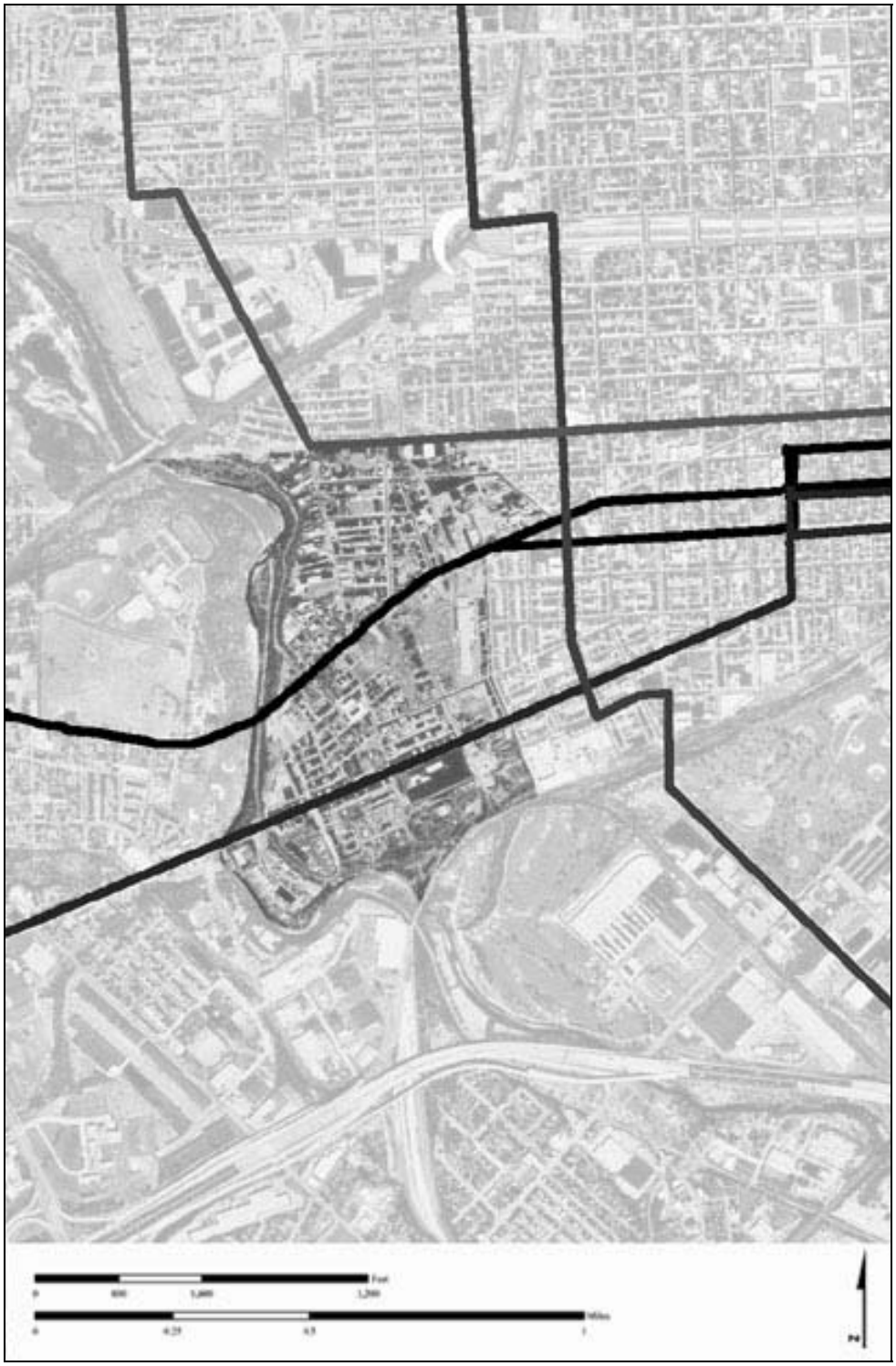

Figure 23: Local Transit Service- The MTA provides bus service for residents. The Frederick Avenue and Wilkens Avenue line carry passengers towards downtown. Just east of the neighborhoods a north-south bus line carries people along Pulaski Street, making a connection at the West Baltimore Station.

LOCAL STREET HIERARCHY:

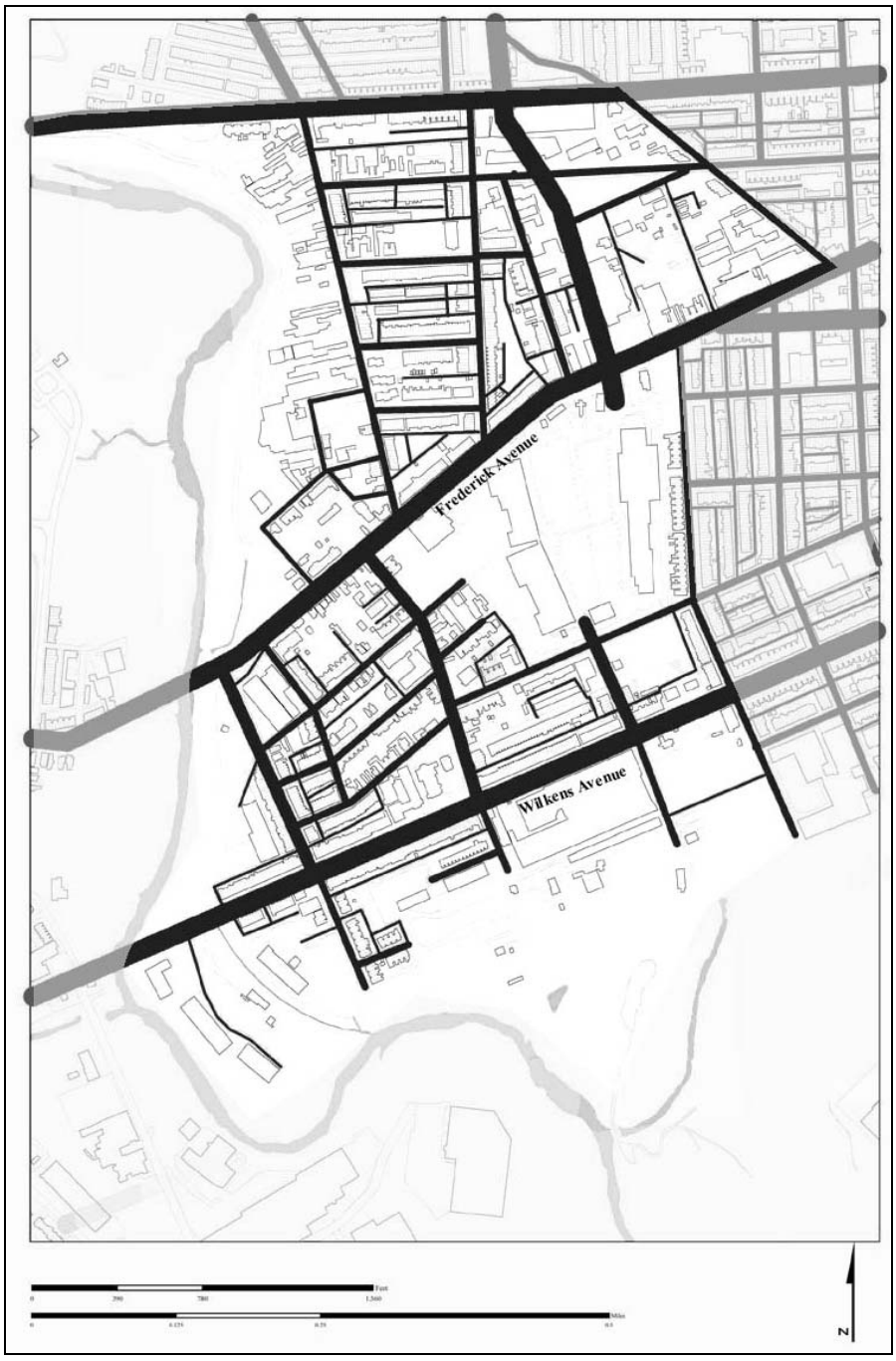

Figure 24: Local Street Hierarchy- The primary east-west streets are Baltimore Street, Frederick Road and Wilkens Avenue. These streets laterally bisect the neighborhoods, carrying regional and local traffic in and out the City center. The primary north-south streets are Warwick Street and Franklintown Road. Warwick starts at Frederick Road, connecting Shipley Hill with neighborhoods north of the CSX right-of-way. While Franklintown road originates at Frederick Road, only the segment of Franklintown Road north of Baltimore Street is two-way traffic. Between Baltimore Street and Frederick Road, Franklintown Road becomes narrow and carries only south bound traffic.

PEDESTRIAN CIRCULATION:

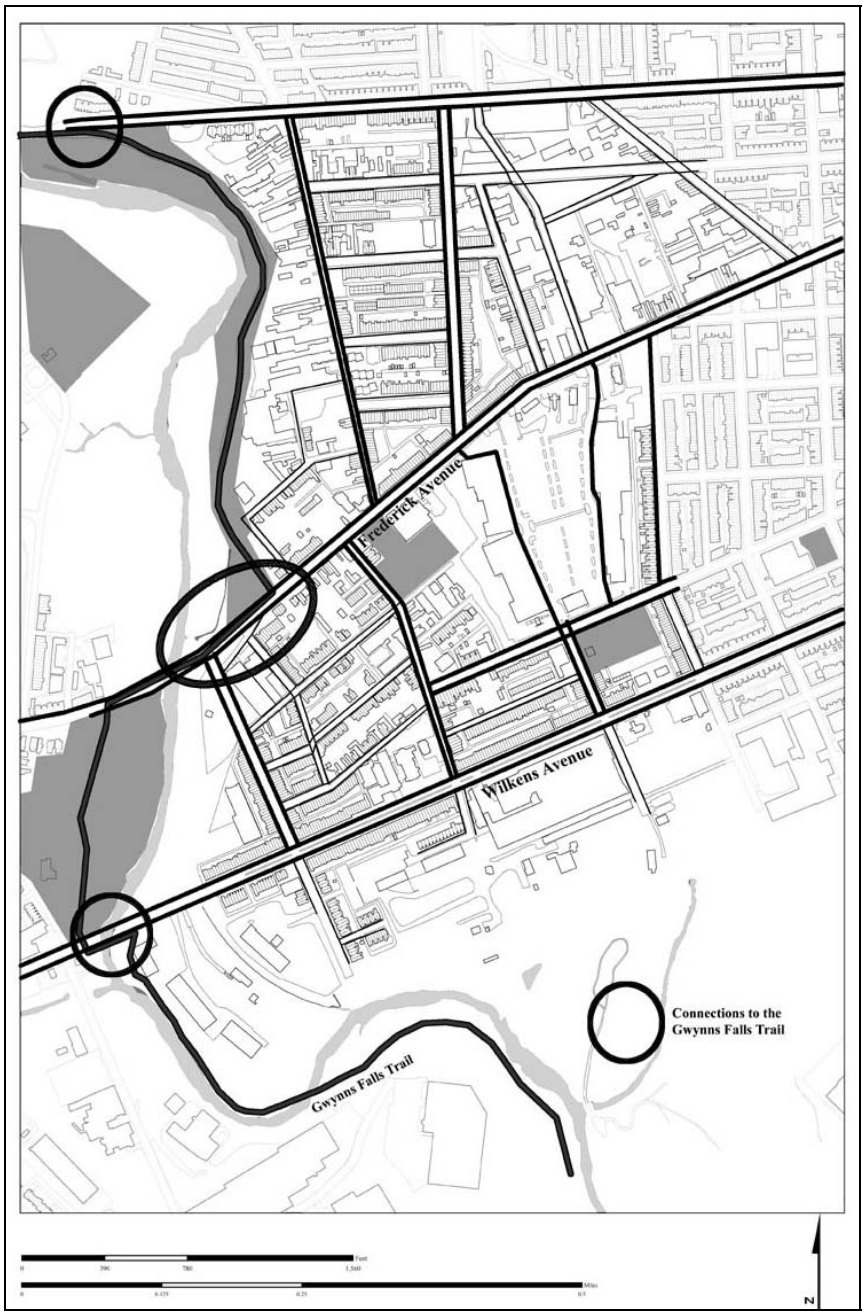

Figure 25: Pedestrian Circulation- Access to the Gwynns Falls Trail is limited to three points, each at the major east-west streets. Street signs are used to indicate entry to the Gwynns Falls Trail. Industrial sites (private property) separate the park from the residential community. The trail south of Wilkens Avenue winds around industrial sites and railroad tracks than beneath the elevated I-95 highway.

STREET GRID:

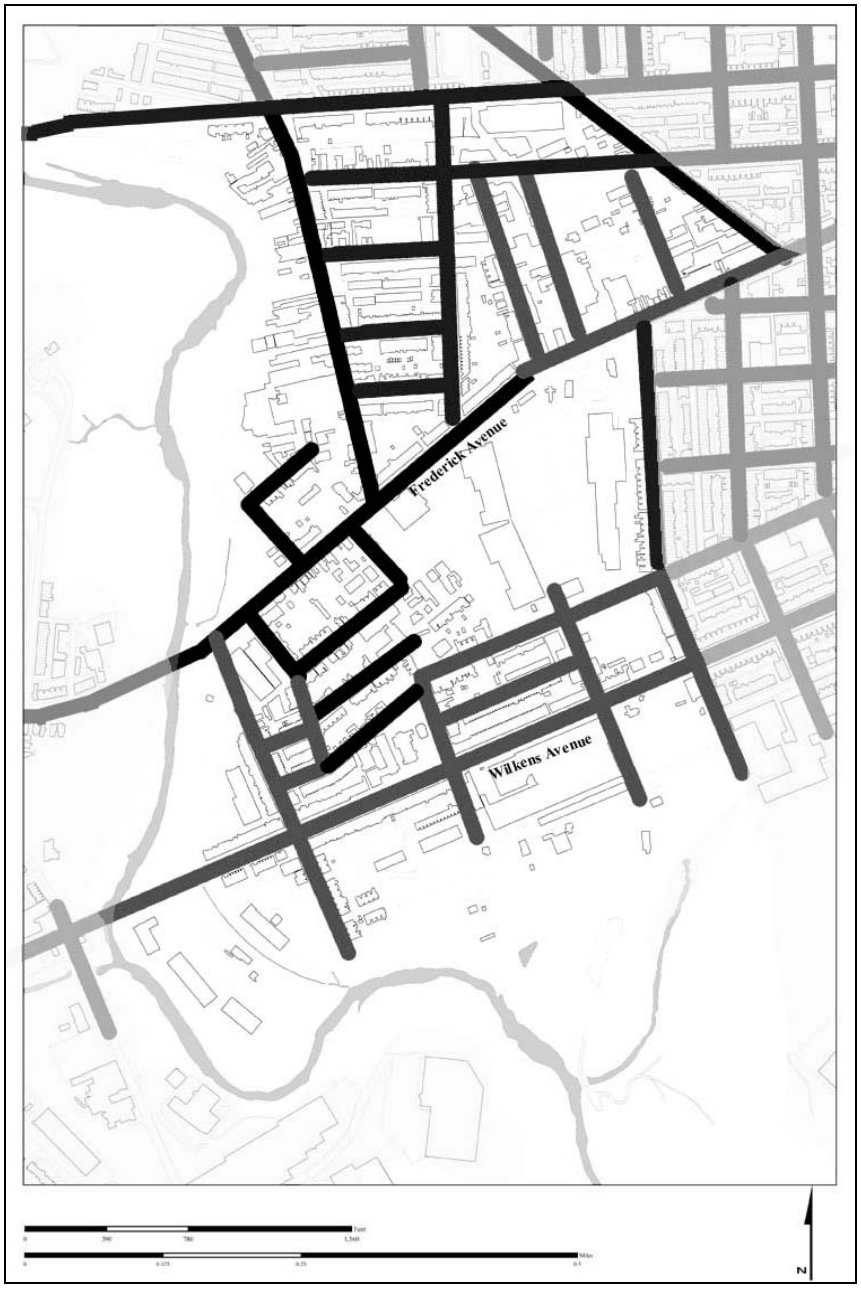

Figure 26: Street Grids- Multiple periods of development and their approach to platting the landscape has created a variety of grids.

Frederick Road winds from west to east adjusting to the changes in topography. Just east of the Gwynns Falls, a series of three streets run parallel to Frederick Road as it rises to the hilltop. This grid marks the original location of the mill village. The end of

the former mill run, paralleling the Gwynns Falls, returned to river just north of Frederick Road.

Further east, another grid is generated by another change of direction of Frederick Road. This segment of Frederick Road descends from Franklintown Road to the base of the valley (former Gwynns Run) and back up towards Calverton Road. The grid moves perpendicularly northward from Frederick Road, as did the Gwynns Run once. This grid supported the industrial development in the valley.

Franklintown Road runs north to south along a ridgeline, ending at Frederick Road, just east of the old mill village. Franklintown Road continues north along the Gywnns Falls connecting other former mill towns like Dickeysville. Calverton Road moves northwest along the edge of the former Gwynns Run. Frederick Road, Calverton Road and Franklintown Road connect points in the most direct way while conforming to the natural obstacles.

The east-west grid-iron of the city rigidly continues from the east to west, extending from downtown until it hits Calverton Road, the edge of the former Gwynns Run valley. Interestingly, Baltimore's grid-iron reemerges along Franklintown Road. It does not appear that these streets ever connected with its corresponding streets east of Calverton Road.

The last grid system parallels Wilkens Avenue. Wilkens Avenue developed in late 19th century with the intention of a straight and direct boulevard extending from the former city edge towards the southwest. Unlike Frederick Road, Wilkens Avenue does not conform to the landscape, instead it bulldozes over the topography.

HOUSING:

Mill Hill is a higher valued and more stable housing market than Shipley Hill. The median value, total land and improvement value, is $32,000 in Mill Hill and less than halve the value in Shipley Hill, $12,000 (OROSW, 2000). Homeownership, owner-occupied structures divided by total occupied structures, is 67.3% in Mill Hill and only 48.1% in Shipley Hill. The abandonment rate is lower in Mill Hill (7.2%) than Shipley Hill (20.6%) (OROSW, 2000).

HOUSING TYPES:

The majority of the housing stock consists of townhouses. The atypical duplex or single-family houses appear to be older forms of housing. While not unique to this locale, there are a small amount of multi-story brick houses with large wooden verandas that run the length of the house, similar to the Charleston, S.C. typology.

Figure 27: Veranda (Frederick & Millington)

Figure 28: Townhouses (typical 2-story townhouses)

Figure 29: Corner Shop (typical 3-story townhouses)

Figure 30: String of Three (Frederick Avenue)

SUMMARY

The two neighborhoods are characterized by the intermingling of often incompatible land uses, high density, high vacancy, overall imperviousness and absence of nature. The residents are of low socio-economic status and perhaps suffer more from polluted conditions, than wealthier residents up stream.

Industrial sites separate residential communities from directly accessing the park. Entrances to the Gwynns Falls Trail are visually underscored and limited to points along busy thoroughfares. The Westside Shopping Center, considered an asset to the community, is the largest contiguous impervious surface of the two neighborhoods. Paradoxically, this impervious surface caps the former Gywnns Run, a tributary of the Gwynns Falls.

Despite the industrial landscape that exists today, the anomalous grid system indicates an era when development might have been more responsive to nature. The residual country roads follow ridge lines or transverses the area bending cautiously finding the most sensitive path.

The valley of the Gwynns Falls has been a visible boundary thorough history. Access across the river is limited to three bridges. Although underdeveloped, this edge condition could heighten a person's sense of arrival to the city.

VISIONS OF NATURE

Although the current environment of Mill Hill and Shipley Hill are relatively devoid of nature, they are not without visions of nature. This chapter examines three documents that envision a more green and clean place in southwest Baltimore. The documents are further evidence that these neighborhoods need to develop a more harmonious relationship with nature.

OLMSTED BROTHERS PARK PLAN FOR BALTIMORE, 1904

In 1904, the Olmsted Brothers published a Park Plan for the Baltimore Metropolitan Region. Their assessment of Baltimore's park system reflects a similar situation today. The city suffered from poor distribution of small parks, deficiency of large parks and deficiency of connections between parks. Furthermore they were concerned for the population's "sedentary life styles," and their inaccessibility to parkland (Olmsted, 1904, p. 21). They argued for a continuous park system, containing various types and scales of open spaces.

Their plan suggested that the city continue developing adequate channels of transportation and a park system with plenty of accessible space for urban residents. In order to maximize accessibility of the parks, the Olmsteds proposed a series of emerald rings surrounding the city, following stream valleys and connecting prominent landscape features. Today, parts of the Olmsted plan are noticeable. The Patapsco River Valley Park System and Leakin Park on the Gwynns Falls are two products of this centennial plan.

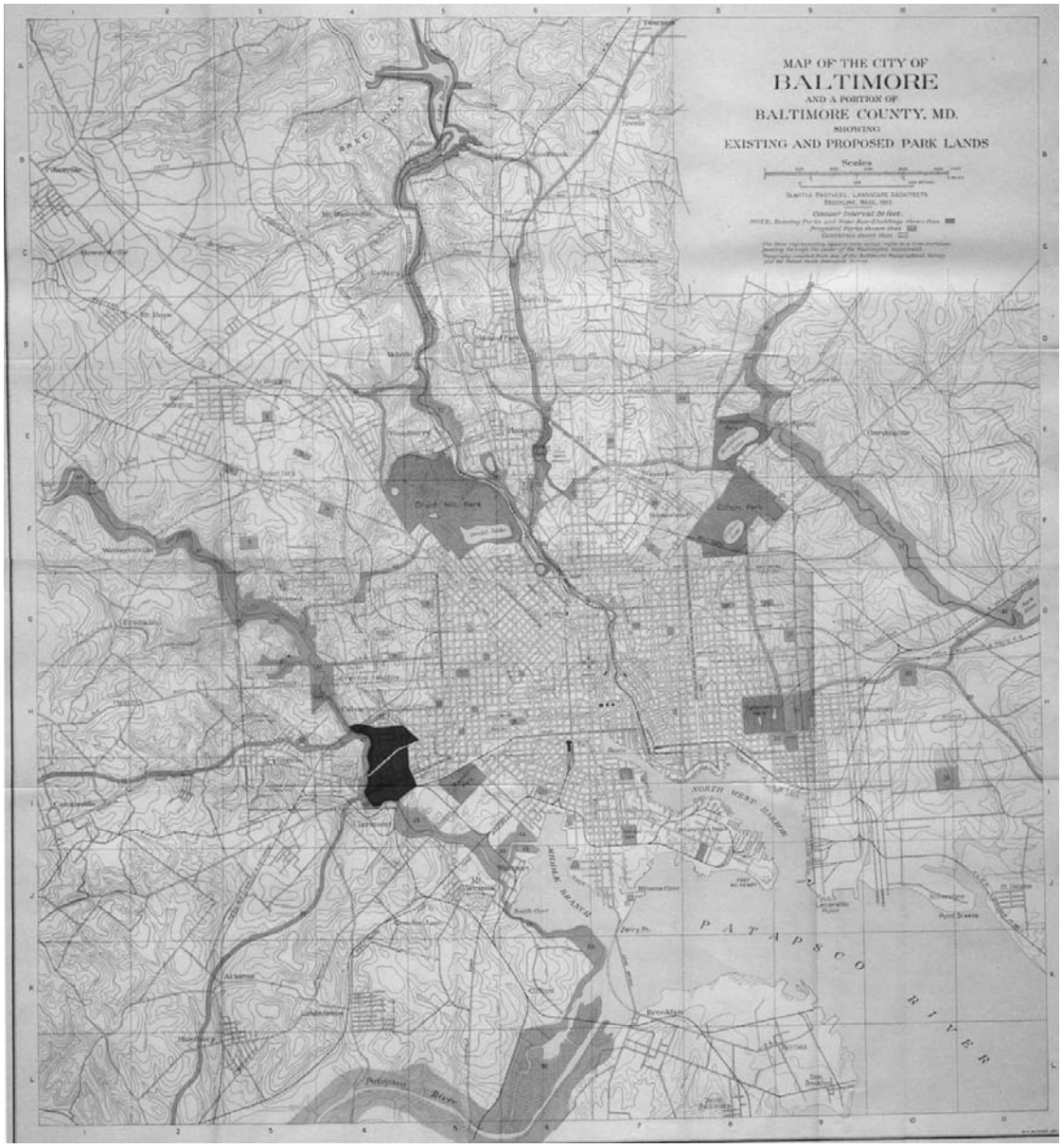

Figure 31: Olmsted Park Plan -black area indicates Mill Hill and Shipley Hill Neighborhoods (Olmsted Bros. 1904)

The planners believed natural landscapes needed to be respected and to become the generator of man-made features, similar in spirit to Ian McHarg. The Olmsteds viewed the natural landscape as commodity for human pleasure, the "essential value lies in the contrast which they (parks) afford to urban conditions" (Olmsted Brothers 1904, p.

21). Today people enjoy parks while the park also helps buffer the waterways from the city's pollution.

PLANBALTIMORE, 2000

At the end of the last decade, the City under took a large campaign to create a new vision for Baltimore. The Planning Department, with the help of The Fannie Mae Foundation and Annie E. Casey Foundation organized a public participatory process to develop a master plan for Baltimore City. This became the first master plan revision in 20 years (Baltimore City Dept of Planning, 2002).

The planning process produced a long list of goals for the future of the city, including Smart Growth policies, launching a Neighborhood Planning Program, strengthening the housing market for middle income residents, creating a vital, dynamic economy, promoting quality urban design, celebrating Baltimore's culture and heritage, sustaining the environment, improving the transportation network, enhancing public facilities and updating and improving the land use plan and zoning ordinances. In general, the focus of the plan is to bring people back to the city, to give the city a new vitality and to secure a sustaining future.

The PlanBaltimore process recognized the importance of a healthy environment for all citizens. The great urban park legacy, founded by city leaders 150 years ago, is threatened by financial shortcomings. The financial shortcomings, in addition to illegal dumping are damaging the city's parklands, neighborhoods and water. The plan encourages stewardship and collaboration among neighborhoods and organizations to restore the city's park heritage and preserve its waterways (City of Baltimore Dept of Planning, 2002).

The plan launched the new Neighborhood Planning Program (NPP), a process of categorizing neighborhoods based on certain indicators. The four categories (Preservation, Stabilization, Reinvestment and Redevelopment Areas) that help determine the priorities the City will take to allocate resources, services and public investments. Preservation Areas are healthy and attractive areas enjoying rising property values. Stabilization Areas have solid homeownership contributing substantially to the City's Tax base, but show initial signs of decay. Reinvestment Areas have blocks experiencing visible signs of stress, but with features or attributes that distinguish them from other areas. Reinvestment areas could be transformed into Preservation Areas with intensive and rapid infusion of resources. Redevelopment Areas have the highest potential to alter the physical landscape in order to improve the quality of life. Mill Hill is classified as a Reinvestment Area, while Shipley Hill is considered for Redevelopment. Neither neighborhoods appear to have received investments.

OPEARATION REACH OUT SOUTHWEST (OROSW) STRATEGIC NEIGHBORHOOD ACTION PLAN, 2002

Mayor O'Malley's new Strategic Neighborhood Action Plan (SNAP) "establishes priority goals, strategies, and implementation actions that the community, the City, and other partners will work together to accomplish" (OROSW, 2002). OROSW's Strategic Neighborhood Action Plan's primary objective is to make Southwest Baltimore a desirable place to live by the year 2018. The plan's core strategy of improving the quality of life includes improving the following: safety, sanitation, health, physical appearance, and recreational opportunities. The plan is implementing asset-building strategies to enhance the core strategies. These asset-building strategies include: build

educational assets that empower residents to obtain employment and establish economic opportunities; build financial assets, through homeownership and financial planning; build upon physical and locational assets, including historic architecture, historic parks, the Gwynns Falls River and Greenway, and the West Baltimore MARC Station.

Gateways are corridors of high visibility that link commercial, recreational, historical and transportation amenities. Improvements to the image of these corridors will help catalyze the improvements and investments to adjacent neighborhoods. Wilkens Avenue, Frederick Road/Pratt Street and Baltimore Street are the three gateways passing through Mill Hill and Shipley Hill.

The existing connections to the Gwynns Falls Trail occur along these gateways. Active and safe street life along these gateways will help reinforce the security and usage of the park. Street trees and landscape improvements provide a visual link from the city to the Gwynns Falls, a strategy used by Olmsted to connect parks. .

The goal of the "Gwynns Falls Vista Park" is to redevelop the industrial parcels along Franklintown Road, obstructing access to the Gwynns Falls Greenway. Besides obstructing views and access to the park, many of these industrial properties are vacant or incompatible uses. Capturing the vistas along Franklintown for the public domain can help raise the value of the adjacent residential properties and encourage new residents.

The "Southwest Town Center" redevelopment concept looks at the area along Frederick Avenue to the north of Westside Shopping Center. This area is mostly vacant and considered unattractive. At the same time in this area are several assets: the Historic National Road (Frederick Avenue), the new Hollins Phoenix (apartment building), historic Eigenbrott Brewery and the Westside Shopping Center. A land use study funded

by the Abell Foundation determined that heavy industry was not the most compatible use for this area. The study recommended a mix of uses, particularly public uses that are more compatible with adjacent residential uses.

SUMMARY

The Gwynns Falls is an enormously overlooked amenity to the City of Baltimore and its adjacent neighborhoods. Connections to the Gwynns Falls Greenway can increase value to both park and adjacent neighborhoods. Maintenance and security seem to be major concerns to people; however a public edge along the park can help reduce the perception of crime. Partnerships between organizations can create funding and maintenance solutions. Education and stewardship are essential components to the continuous success of any redevelopment vision.

FINDING NATURE

As discussed earlier, parks provide a multitude of benefits for the city and its residents. Residents of Baltimore have a history of urban park development. As earlier as 1904, the Olmsted Brothers had a vision for the Gwynns Falls. More recently the development of the Gwynns Falls Trail and the Baltimore Ecosystem Study has brought attention to this watershed. People around the city are finding recreation, education and relaxation along the Gwynns Falls. Despite the public interest in the park, the park suffers from lack of visibility and poor water quality. This thesis explores urban and architecture design solutions to create a public entrance to the park, knit the city back to the park, while improving water quality. This thesis further explores the question of what is the form and image of stewardship.

DESIGN OBJECTIVES

I. CONNECTING PEOPLE TO THE PARK

Connecting people to the Gwynns Falls Park is an investigation of procession and place making. In order to create a park which people consider their own, the park needs to be visibly and physically a part of a person's daily life. While a visual connection does not create a bonding relationship between residents and the park, it does create awareness. This consciousness of nature begins with a glance down the street or a view from an apartment window of the park. This daily affirmation of the amenity can help foster a sense of ownership and stewardship of the park. Terminated views and vistas further draw the attention of people to the amenity.

The form and appearance of the path from the home to the park is important to entice people to approach nature. The path becomes less burdensome with a pleasant and enjoyable streetscape. In some cases, the street can serve as the extension of the park. The parkway places a strip of park at the center of a wider avenue, like Eutaw Place, Baltimore.

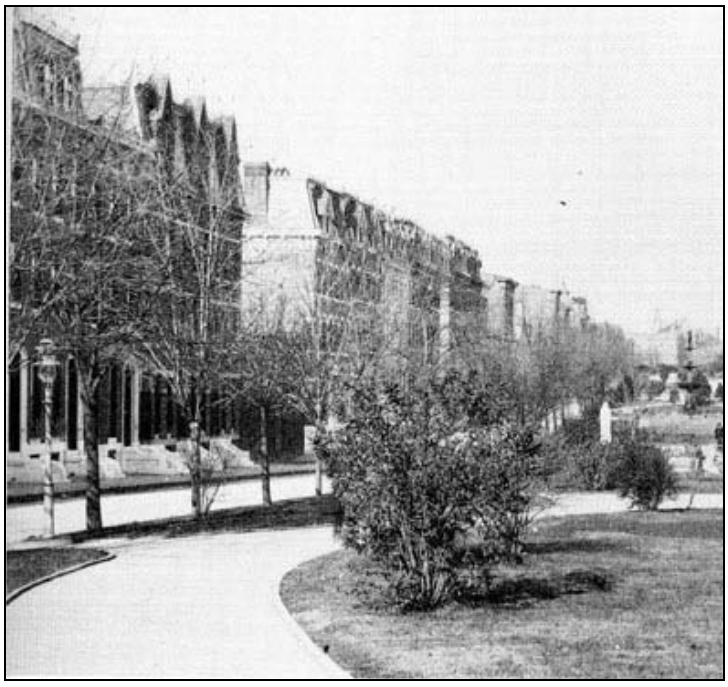

Figure 32: Eutaw Place, Baltimore- The street becomes an extension of nature (Ryon, 1993)

The edge between park and city plays a significant role. Currently the edge is formed by industrial properties, blocking direct access to the park from the residential neighborhoods. A more porous edge facilitates direct access to the park. Typically, great urban parks have perimeter promenades and streets separating the city and park. The exposed public edge potentially increases the amount of surveillance and perception of safety. Views into the park, permitted by a public edge, encourage people to explore.

The edge can also enhance the public realm of the city. Local businesses, like restaurants, can gain business from park users. Furthermore an active street can fill the park with satisfied consumers.

The goal of getting to the park needs to be worth the person's effort. Great vistas up and down the river valley, a mature tree with an umbrella-like canopy, a gazebo for picnics, a path for strolling, and athletic grounds are a few examples of amenities that might draw people into the park. Architecture and landscaping can help direct people to these destinations. Gateways, landmarks and spaces help navigate and orient people through the city and park. These elements provide places for people to gather. In the case of this thesis, the architectural program acts as a destination and gateway.

II. DECREASING THE IMPACT OF THE CITY ON GWYNNS FALLS

The environmental benefits of a park are significant reasons to redevelop brownfields into park space. The large amount of impervious land in the two neighborhoods indicates that the integrity of the Gwynns Falls suffers from pollution from non-point sources and high storm surges that expedite bank erosion. The preservation of the river and its water quality are essential for future generations to enjoy its tranquil beauty.

In order for ecological processes to handle the impact of human settlements, like runoff, the landscape requires more land devoted to green space. To maximize the potential of nature, the built environment needs to be minimized. Clustered land uses and compact development reduces the space needed for settlement. In the situation, where the infrastructure exists, increased density and infill development proves to be the more sustainable pattern, by reducing the amount of virgin land developed (Grant et al. 1996).

Not only does reducing the footprint of the city optimize ecological processes, but increases the amount of space available for parks.

Reducing impervious surfaces and collecting runoff will help improve river and water quality. Storm water design can accommodate both functional and esthetic requirements. Rain gardens and native wetland retention ponds encourage people to experience the cycle of water, as it returns to the earth.

The materiality of buildings can help reduce the amount of runoff needed to be collected during storm situations. Using pervious and semi-pervious surfaces cut down the amount of storm water. Brick pavers with open centers, provide enough strength and stability for streets and walkways, while at the same time reducing the amount of imperviousness. Roof gardens absorb water as well as serve as an extra layer of insulation. The design of the roof can collect water into cisterns or rain gardens, preventing the runoff.

III. BUILDING PARTNERSHIPS AND STEWARDSHIP

The primary program of the Urban Ecological Center consists of a research center for the Baltimore Ecosystem Study (BES) and a place for public outreach whether that is environmental education, community meetings or "greenway galas." The building is an integral component of the urban design, serving as a focal point for the neighborhoods, a gateway between park and city and a regional attraction.

Social responsibility and participation are requisites for a successful and healthy watershed and greenway. Urban form and architecture are not enough to change human habits. However, this center provides a place for people to learn about their environment, study their environment and to come together to create change.

ARCHITECTURE PROGRAM

The ecological center is composed of two functional programs: outreach and research. The outreach component focuses on educating, creating awareness about ecology and promoting community partnership and environmental stewardship for the Gwynns Falls Watershed. The research component serves to advance our understanding of urban ecology and promotes collaboration among academics and professions working to advance the knowledge in this field.

OUTREACH CENTER (MAJOR ROOMS):

Entrance Lobby:

The entrance plays an important role in gathering people into the facility, to shelter people as they orient themselves to the other rooms and to display community information and announcements.

Exhibit Gallery:

The exhibit gallery will house the permanent exhibit on the Gwynns Falls Watershed. In order help people feel a part of the environment, a large map of the watershed will be laid on the floor. As people look at the exhibit, they can find their house on the floor, reinforcing a personal attachment to their environment. The gallery should hold 300 standing (people).

Auditorium:

Flexible space is an important factor for the design of the auditorium. The auditorium will accommodate community meetings, lectures as well as cater for dinners and parties. The room will hold 200 seats. A raised stage is a necessary component for assemblies. The kitchen should be adjacent.

Bookshop:

The bookshop will focus on merchandizing the Gwynns Falls. Maps, guidebooks and other recreational and naturalist resources will be stocked. Fundraising products will be sold from this location.

Classrooms:

Local children and adults will be able to attend workshops and educational activities. The two classrooms will also serve as smaller meeting rooms or conference break-out rooms.

RESEARCH CENTER (MAJOR ROOMS):

Office Suite:

Long-term ecological study researchers and administrator will occupy the offices. The office suite consists of 10 research offices, an executive office, a meeting room, small lounge and lobby with receptionist's desk.

Gallery:

A small gallery will serve to receive and buffer the public from the researchers. The gallery is a place for researchers to monitor their peers' progress and to display related research.

Laboratories:

Three laboratories will be a space of active controlled research and lab-oriented classes for local colleges and advanced grade schools. The laboratories will have basic academic lab features, like storage around the room, demonstration sink and counter space, flexible lab-classroom workspace.

Library:

The library will house a selective listing of journals and references for the researchers. The library will serve as an alternative and comfortable place to work outside the lab and office.

OUTDOOR SPACE:

Entry Forecourt:

The entry forecourt provides a space for visitors to assembly before entering ecological center. The forecourt buffers the street from the building.

Garden Center:

The garden center offers people the opportunity to purchase a limited amount of garden supplies to help beautify a neighborhood park or their yard. In addition to outdoor space, a storage facility is required to shelter merchandize.

Community Garden:

A community garden offers a place for urban gardeners to grow fruits, vegetables and flowers. Adjacent plots bring people together to share ideas about planting, not to mention, can help foster a sense of community. The success of a garden can be a major sign of pride among local residents.

Greenhouse:

The greenhouse provides a place to grow plants throughout the year. This facility will be accessible for researchers to carry out experiments.

Amphitheater:

The amphitheater provides a place for outdoor learning, a starting point for hiking clubs, an outdoor summer film festival and various other outdoor gatherings. The amphitheater will serve both community and educational programs.

	Program	Narrative/Description	Adjacencies	number of rooms	SF/room	Total SF
PKG	Parking spaces	9'x30' (parking and half drive)		20	270	5400
	School Bus/Tour Bus			3	1620	4860
	TOTAL PARKING					10260
OUTREACH CENTER	Entrance Lobby	hold up to 300 people (max for community meetings or lectures	shops, gallery, WC, auditorium	1	900	900
	Exhibit Gallery	300 visitors/hor (greatest capacity) permenant display of gwynns falls environ plan of watershed on floor	lobby,	1	1500	1500
	Auditorium	flat floor, holds 200 seats raised stage	lobby	1	3000	3000
	Bookshop	sells books and fundraiser merchanise	lobby	1	1200	1200
	Bookshop Storage/Office	desk, phone, computer and space for storage	shop	1	150	150
	Classrooms	grade school and adult education; small community meeting rooms	lobby	2	800	1600
	Storage		mechancial	1	200	200
	Mechanical		storage	1	200	200
	Waterclosets	includes space for janitor	Lobby,	1	1200	1200
	Kitchen	catering for auditorium	auditorium	1	3000	3000
	Circulation	(15% of total sf)		1	1942.5	1942.5
	TOTAL OUTREACH CENTER					14892.5
OUTDOORS	Entry Forecourt	Outdoor gathering spot	street	1	1500	1500
	Garden Center	seasonal outdoor/	street	1	200	200
	Garden Center storage	to store garden supplies and register	garden center	1	90	90
	Community Garden		garden center	1	1600	1600
	Greenhouse	winter plantings	garden center	1	800	800
	Recycling Center		street	1	625	625
	Picnic areas	table and benches with trashcan		3	100	300
	Outdoor amphitheater	place for summer films, outdoor classroom		1	1000	1000
	TOTAL OUTDOOR AREA					6115
RESEARCH CENTER	Mtg Room	holds 12 people	offices	1	400	400
	Offices	office for scientist	offices	10	120	1200
	Executive Office	Center's manager	offices	1	150	150
	Lobby/Secretary	300 for lobby and 120 for receptionist	offices	1	420	420
	Material Display/small galler	rotating exhibit of research	lobby	1	800	800
	Small kitchen and lounge		offices	1	300	300
	Laboratories	includes sinks, counter surface, cabinet storage,	labs	3	800	2400
	Lab Storage			1	300	300
	Library	includes reference material, 2 computers, and	offices	1	1600	1600
	Site supt.	office, desk computer,	labs	1	150	150
	Storage/custodial		labs	1	200	200
	Mechanical		labs	1	1100	1100
	Water closets	locker, toilets and shower for each gender	offices, lab	1	300	300
	Circulation	(15% of total sf)		1	1398	1398
	TOTAL RESEARCH CENTER					10718
TOTAL BUILDING AREA						**35870.5**

Table 2: Architectural Program Summary

URBAN DESIGN STRATEGIES

This portion of the thesis investigates, at different scales, ideas about how to reconnect the city with nature. Since water quality is a major role in the urban design, a master plan for a watershed would be the ideal start. However, the lack of time and resources limits this investigation to Mill Hill and Shipley Hill and the surrounding neighborhoods.

The urban design problem is essentially an exploration of edge conditions, focused on improving the water quality of the waterway. The urban design strategies attempt to develop different attitudes about edge and the way runoff can be collected. The three models include a study of "Infill, Excavation and Weave." The result of the urban design investigation will help inform the site selection of the Baltimore Ecosystem Study.

“INFILL” APPROACH:

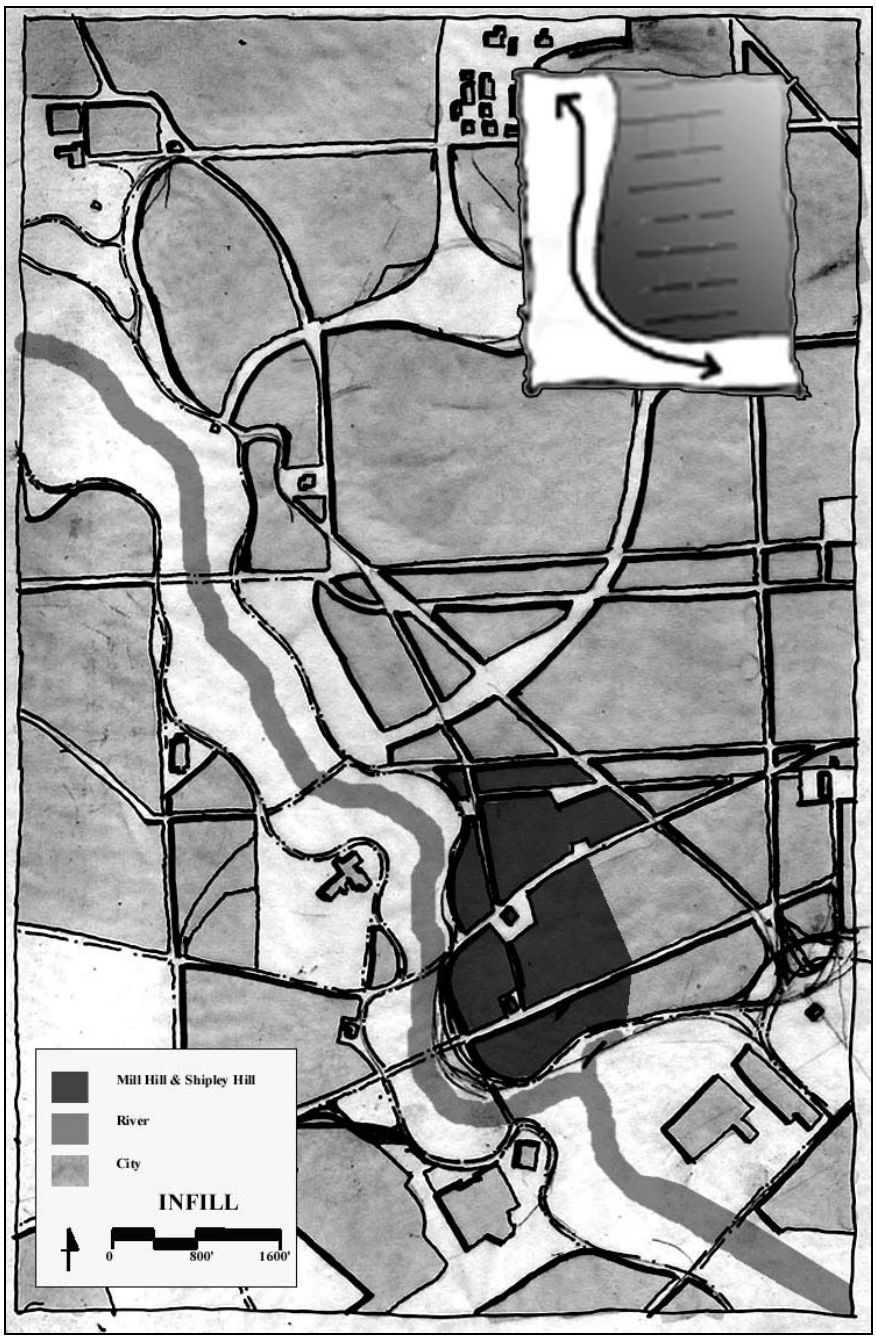

Figure 33: “Infill” Urban Design Strategy

Extends City Grid
Promotes Urban Infill
Permits park to edge along Gwynns Falls
Entrance occurs at street intersections with Parkway
Parkway and Trail parallel Gwynns Falls
Forest Buffer expanded to filter runoff
Precedent: Riverside Drive, NYC and Rock Creek Park, DC

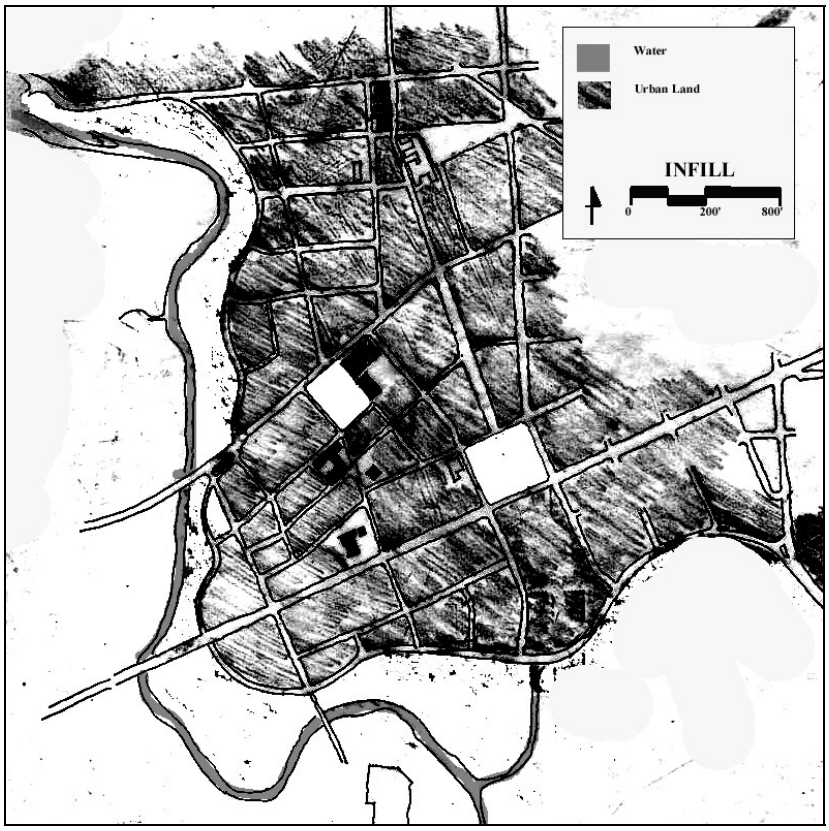

Figure 34: Potential "Infill" Figure-Ground Diagram

The "Infill" urban design strategy attempts to create a public face on the park. A promenade or public street, with residential and related commercial uses, creates a hard edge facing the park. Direct access to the linear park system, encourages reinvestment in the neighborhood, catalyzing brownfield development. While encouraging infill does not reduce impervious surfaces, it may reduce development of greenfields. Since the urban infrastructure exists, increasing density of the site proves to be sustainable. At the same time this approach expands the buffer along the Gywnns Falls, allowing the landscape to remain productive (Grant et al., 1996).

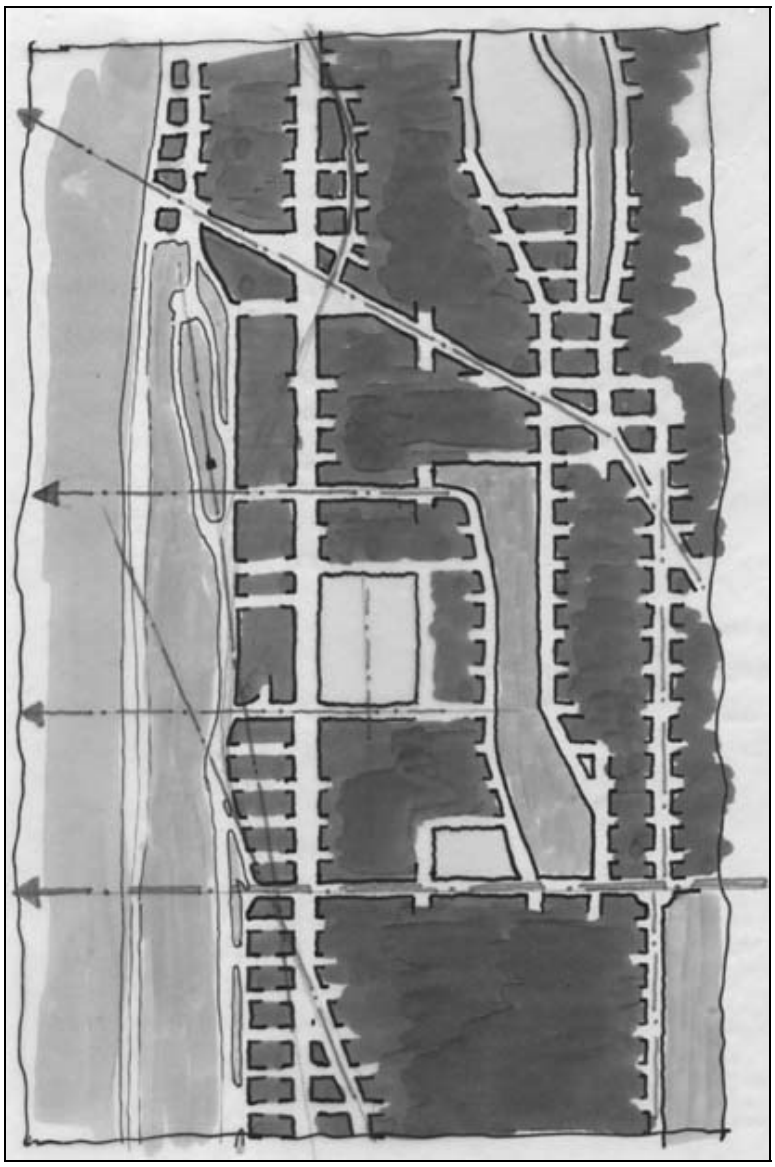

Figure 35: Plan of Riverside Drive & Morningside Park, NYC, F.L. Olmsted

Potential urban precedents include Riverside Park, NYC by the Frederick Law Olmsted. The grid of Manhattan intersects Riverside Drive, the formal edge of the park, creating porosity between the city and nature. Furthermore the park terminates the streetscape, allowing people in the city to visually reconnect with nature. The park encloses the city creating a threshold between Manhattan and the Hudson River. The

edge becomes a place where architectural events occur. Bends along this promenade, provide vistas of the Hudson River, places for memorials, like Grants Tomb and places for civic institutions.

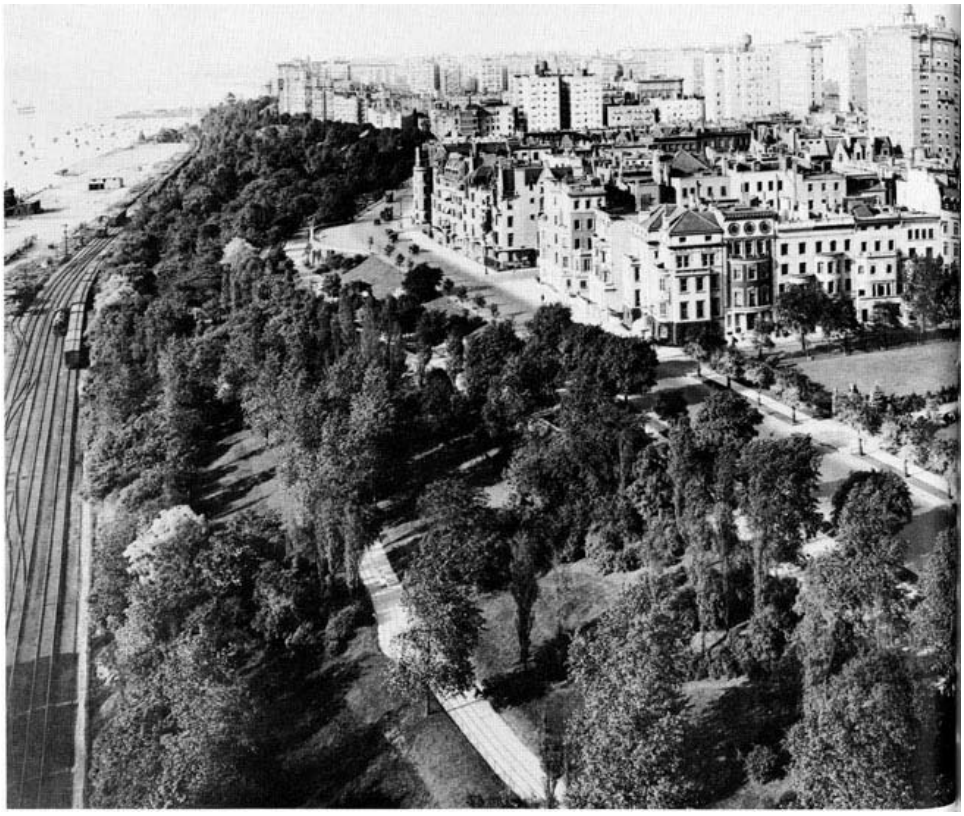

Figure 36: Photo of Riverside Park, NYC, F.L. Olmsted, c.1900 (Simpson, 1981)

More similar to the size and scale of Baltimore is the relationship between Rock Creek Park and Washington, DC. The neighborhoods along the Rock Creek are dominated by townhouses, mixed with some apartment buildings and single-family houses. The Gywnns Falls and Rock Creek are valley greenways that tumble over the falls line, the drop from the Piedmont Plateau to the coastal plane. Rock Creek is perceived to be frequently used and has maintained the natural beauty of a forested

stream valley. At certain points the Creek and valley serve as distinct threshold between neighborhoods.

Not only would a formal building edge along the Gwynns Falls serve as a gateway between neighborhoods and the park, but the edge creates a sense of arrival into Baltimore from the hinterlands. The procession of passing over the bridges, past the landscape and into the city, is similar to entering Adams Morgan, DC.

“EXCAVATION” APPROACH:

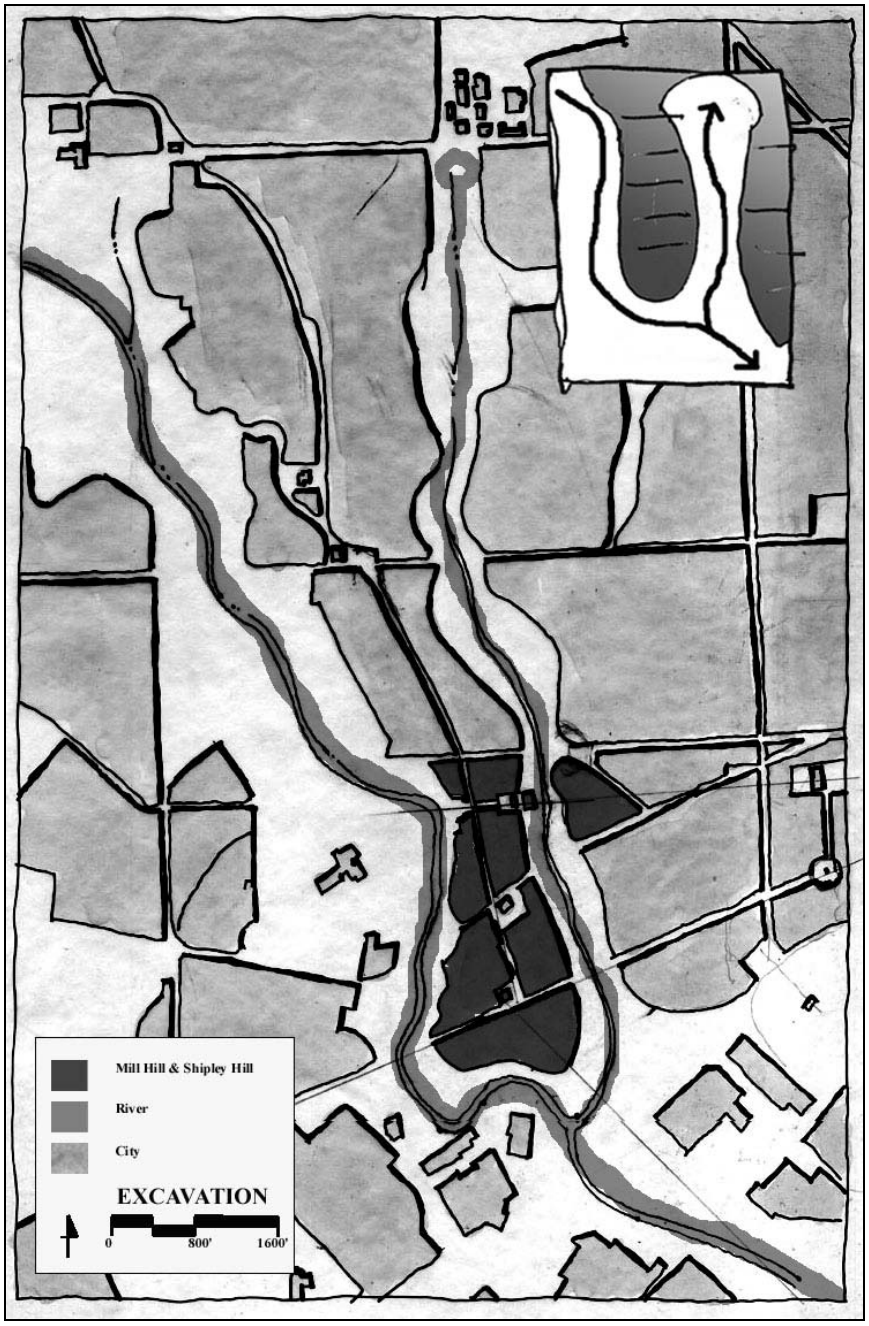

Figure 37: “Excavation” Urban Design Strategy

Discontinues City Grid
Resurrects the Gwynns Run
Maintains hard edge along Gwynns Falls Parkway
Entrance occurs at street intersections with Parkway
Parkway and Trail parallel Gwynns Falls
Forest Buffer and Gwynns Run to filter runoff
Precedent: San Gimignano, Italy and Santa Rosa Creek Restoration, CA

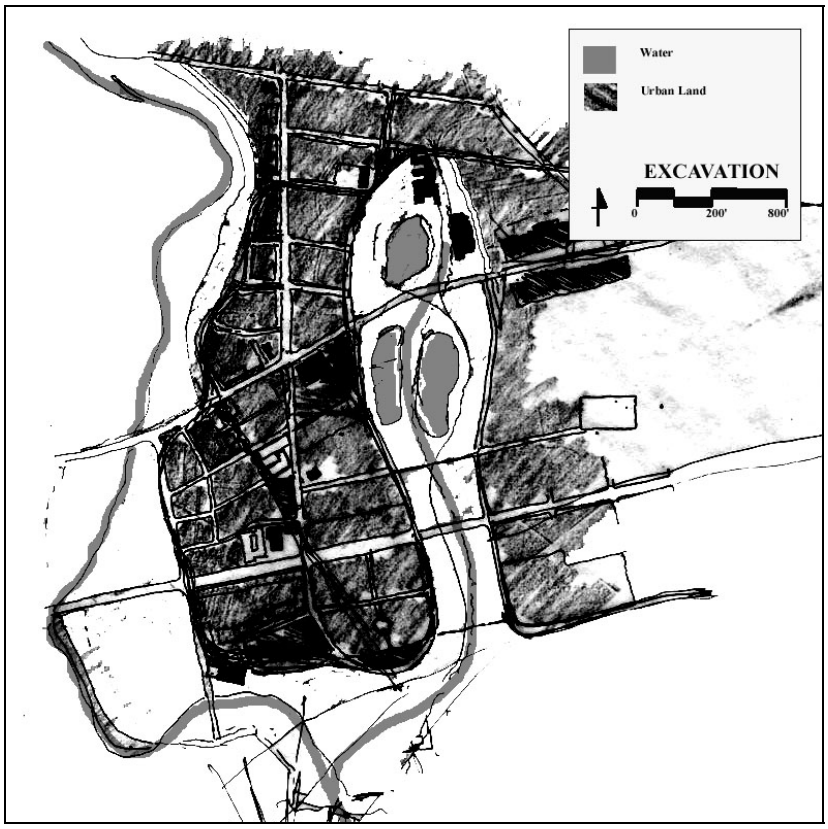

Figure 38: "Excavation" Figure-Ground Diagram

The "Excavation' approach reconstructs the Gwynns Run, a stream currently built over by commercial and industrial uses. The reestablishment of this tributary, like the ecological park type, serves as a mechanism to filter polluted runoff, while creating more pervious surface.

While Mill Hill and Shipley Hill have finite boundaries to the west and south, the eastern boundary is not clearly defined. The edge is blurred by the continuous blocks of townhouses. This model's open space creates not only open space but an additional edge to the two neighborhoods, reinforcing the sense of place and community, as felt in small Italian hill towns. The compact urban form, homogenous urban fabric with a center and

clear edges reinforces a person's perception of territory and community. In these situations, like San Gimignano, people are either inside or outside of the city.

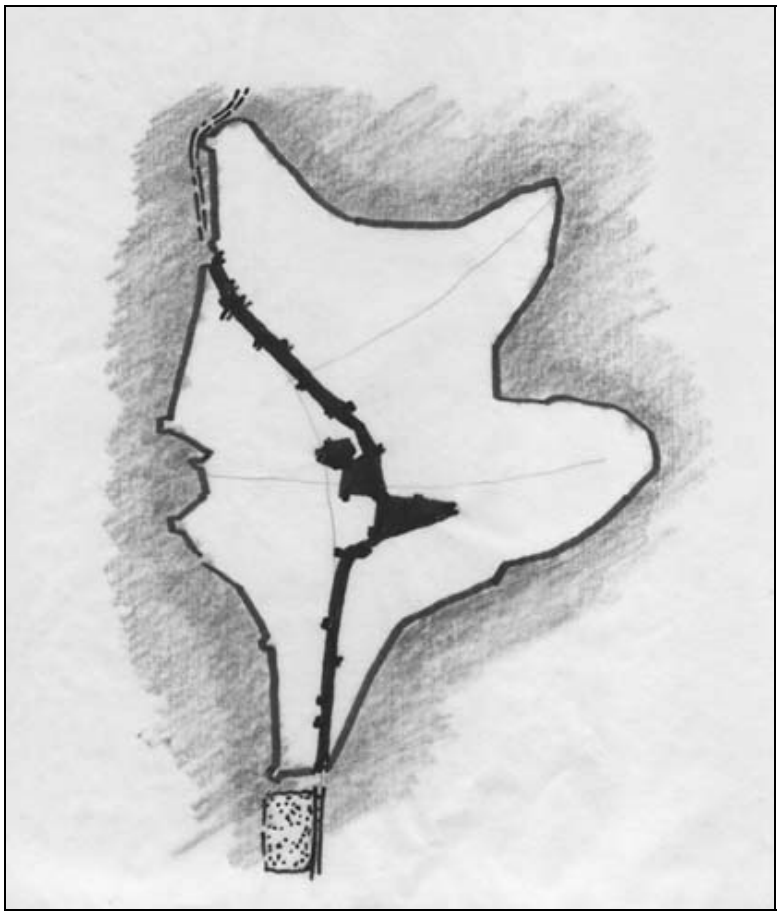

Figure 39: Edge and Center of San Gimignano, Italy

The Santa Rosa, CA creek revitalization project demonstrates "that with the aid of a jackhammer, a river can be returned to life" (Riley, quoted in Viani, 2002). This restoration effort cleaned up the water, restored healthy indigenous fish populations, created an open space system for a downtown, made downtown Santa Rosa a tourist attraction. The waterway plan encourages businesses to front the creek, providing a destination for bikers and pedestrians. The project brought together a lot of people. Teenagers worked on murals while business leaders donated money. Despite the

project's large cost, "no one involved in the project thinks the city would have been better off leaving the creek sealed" (Viani 2003).

Figure 40: Santa Rosa Creek Restoration (Viani, 2003)

Landschaftspark, Germany, designed by Latz + Partners, illustrates the belief that, "widespread ecological renewal must precede any lasting economic revival" (Tate, 2001). The designers allowed an old industrial site to be reclaimed by nature, creating an atmosphere of "decay and revitalization" (Tate, 2001, p. 117). Individual preferences by park users are accommodated by making available a selection of spaces and possible activities, like rock climbing on an abandoned coal refinery building or vegetables gardens.

Figure 41: Landschaftpark, Germany, Litz + Partners (Tate, 2003)

This approach brings nature up into the city, creating open space and an edge to neighborhoods. The industrial heritage and current commercial center existing in the Gwynns Run right-of-way can take on similar characteristics of the Landschaftpark or Santa Rosa. Adaptive reuse of industrial buildings, like the Eigenbrott brewery could be used to sponsor recreational or related commercial activity. For example, REI, the co-op outdoor recreational retailer reused an old power plant in Denver, CO. The Southwest Town Center, could be reoriented to face the stream. This orientation activates the park, increases the perception of safety while supporting the local economy.

”WEAVE” APPROACH:

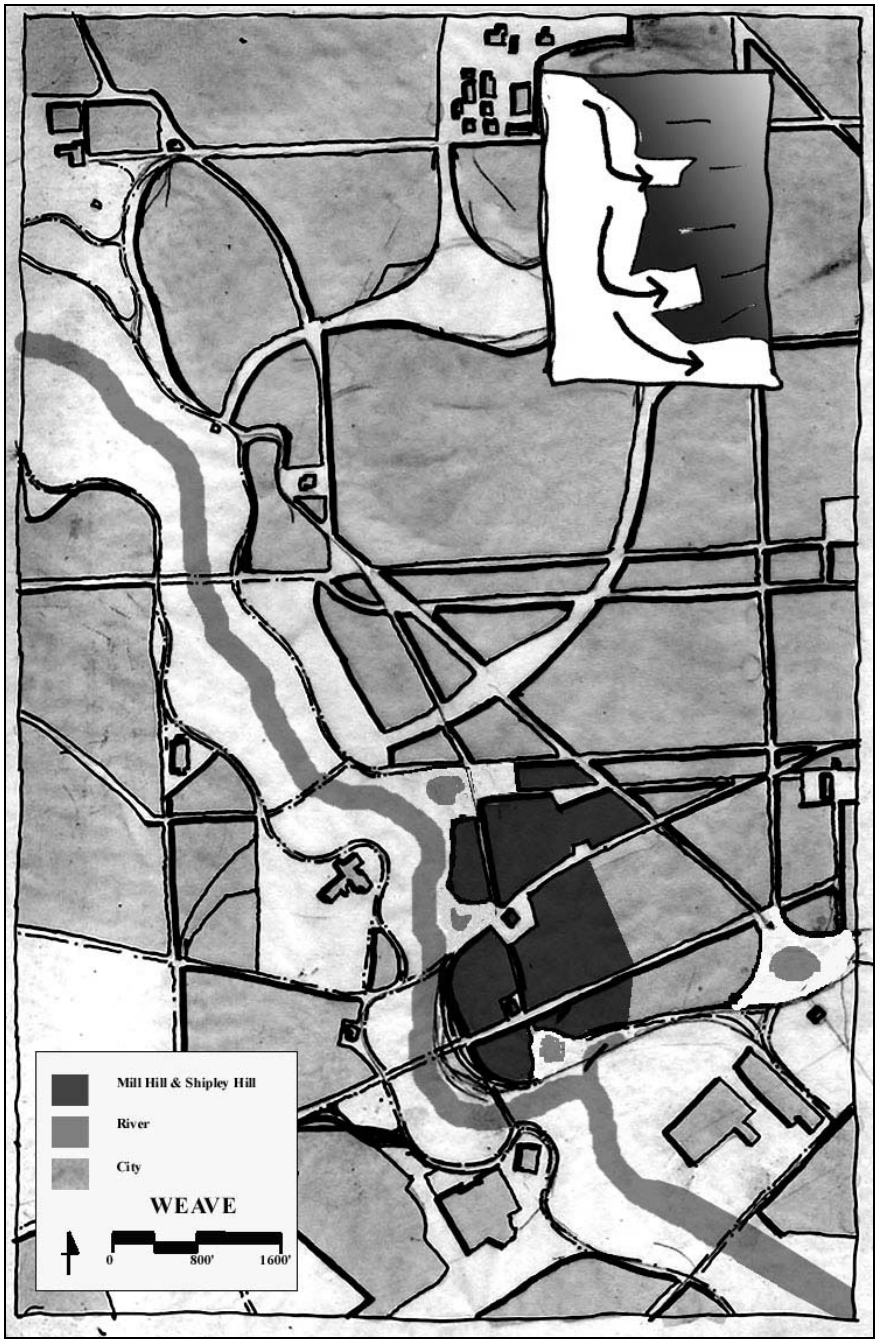

Figure 42: Weave Urban Design Strategy

Extends City Grid
Promotes Urban Infill
Extends park into city along major corridors
Entrance where park enters city
Creates places for retention ponds to filter runoff
Precedent:

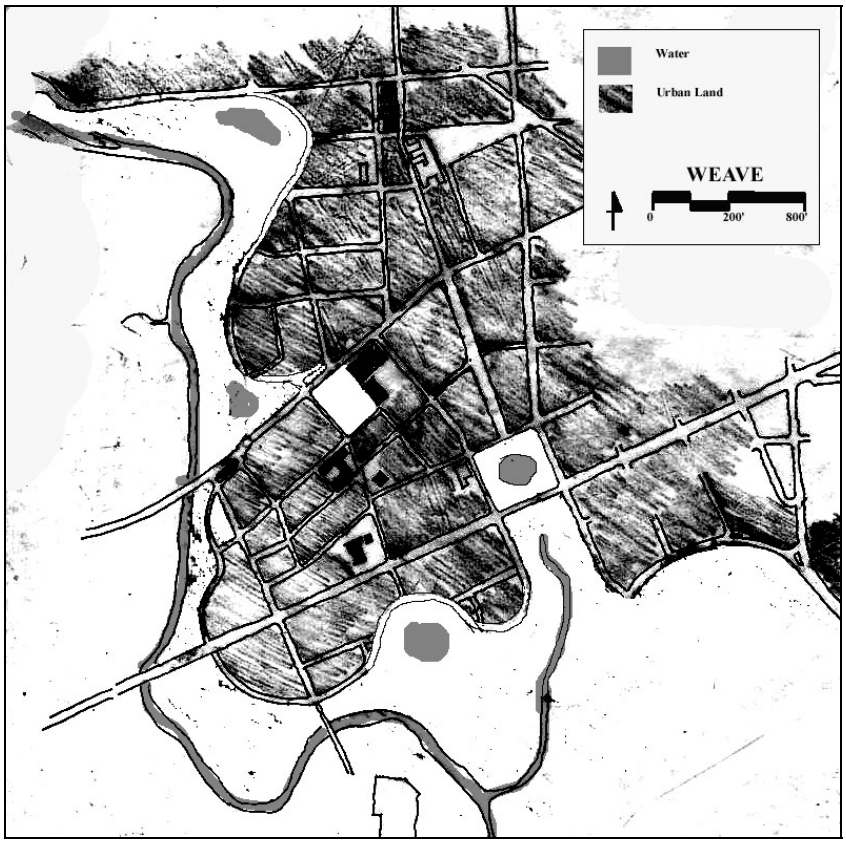

Figure 43: "Weave" Figure- ground diagram

The "Weave" approach attempts to bring the park into the city, like fingers. The park extensions bring the Gwynns Falls landscape up into a more enclosed urban setting. The benefits of this strategy are to increase the amount of urban land that touches the park as well as provides spaces for retention ponds.

Baltimore developers constructed public squares to attract the real estate market to their properties. Properties around these squares, like Union Square and Canton Square have maintained their value. Bringing the nature out of the Gwynns Falls valley and into the city will fetch higher prices for homes. The common space becomes an extension of the private lawn. The finger parks serve as centers of a small residential community, like a village green. These common spaces enable people to have chance meetings. Residents gain direct access to the Gwynns Falls trail.

Retention ponds serve as the feature of the finger parks. Like the ecological park model, the residential squares provide a narrative about the water cycle. Residents enjoy the colors of water-loving plants, as they filter gray water from the streets. The park becomes an educational device to teach and promote stewardship.

ARCHITECTURE DESIGN STRATEGIES

The Urban Ecological Center site will be determined through an investigation of the urban design and analysis of the landscape. Several sites will be explored to test the buildings ability's to serve as gateway between the city and the park. The form of the building will be determined based on the urban and natural conditions.

This thesis explored three architectural parti diagrams at various scales- the immediate site, the building in plan and diagrammatic massing. The three parti diagrams are "Terrace, Courtyard, and Bridge." The figure below illustrates the location of the architectural parti. The parti is predicated on the topography and urban condition. For example, the "Bridge" parti elevates the building program above the ground and water. feature.

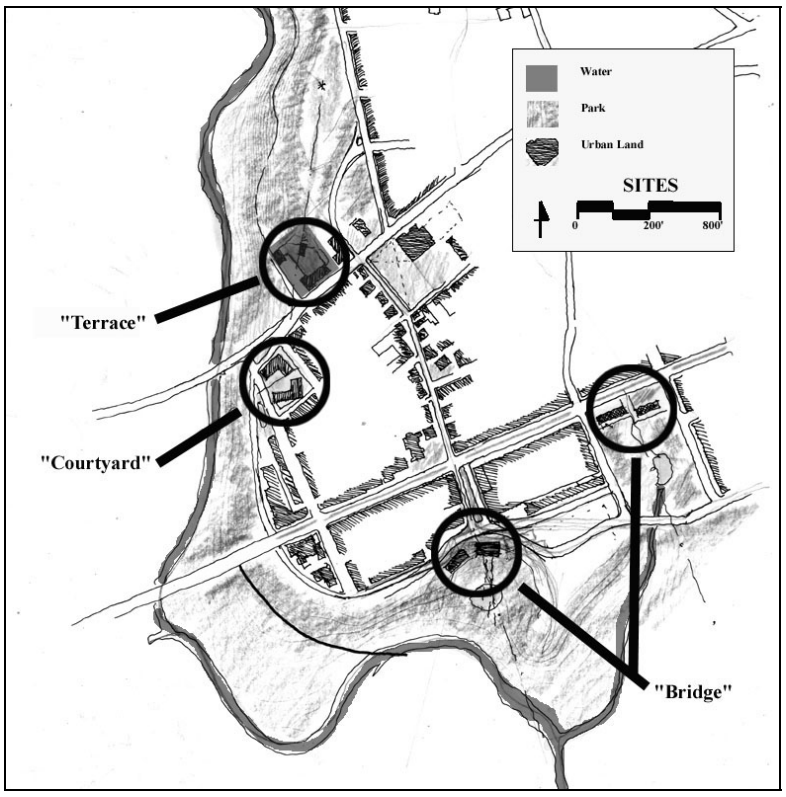

Figure 44: Architecture Site Location Plan (composite urban design)

“TERRACE” PARTI:

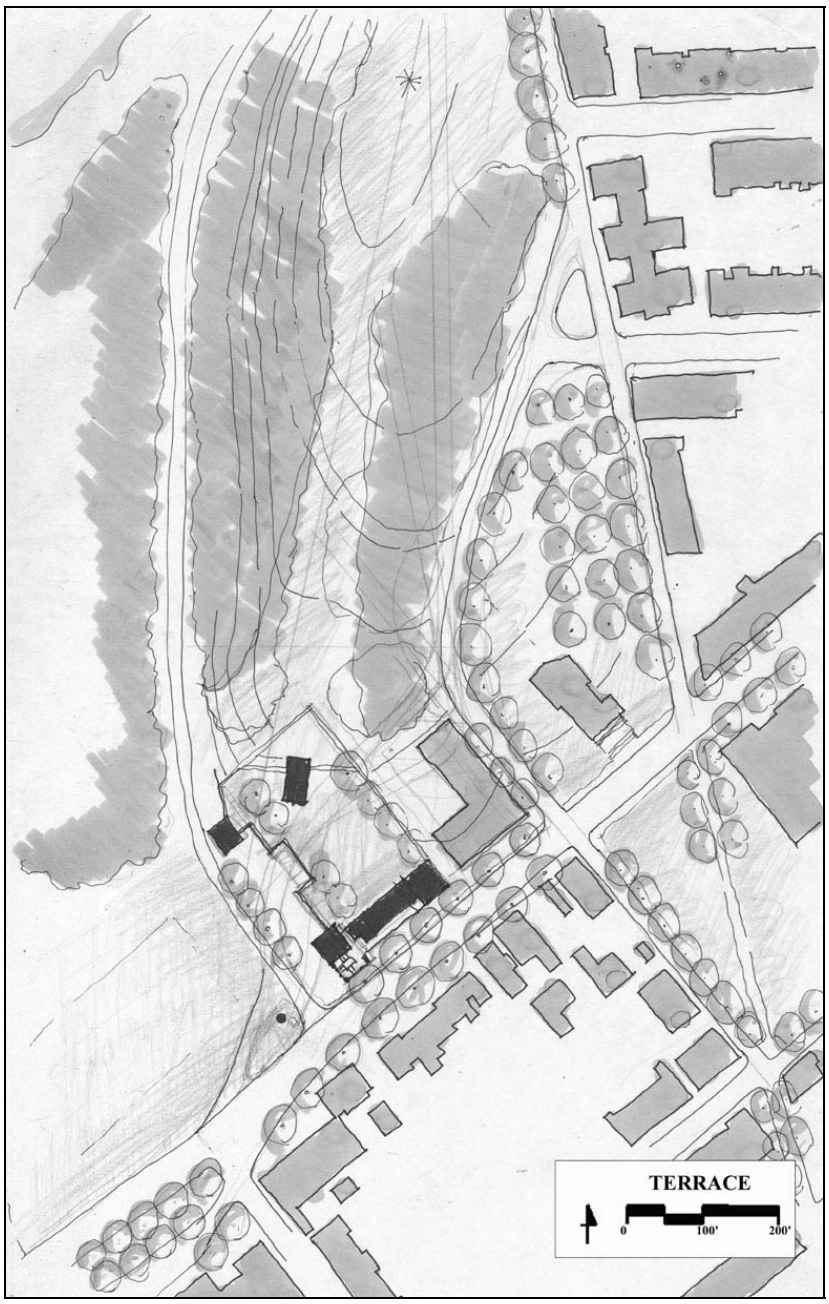

Figure 45: “Terrace” Parti

Creates a street edge along Frederick Avenue
Places parking below the terrace
Stacks building program to minimize impervious surface
Enhances the entrance of Gwynns Falls Trail
Most applicable to “Infill and Weave” urban designs
Precedent: Italian Villas and Joseph Lewis Center, Oberlin

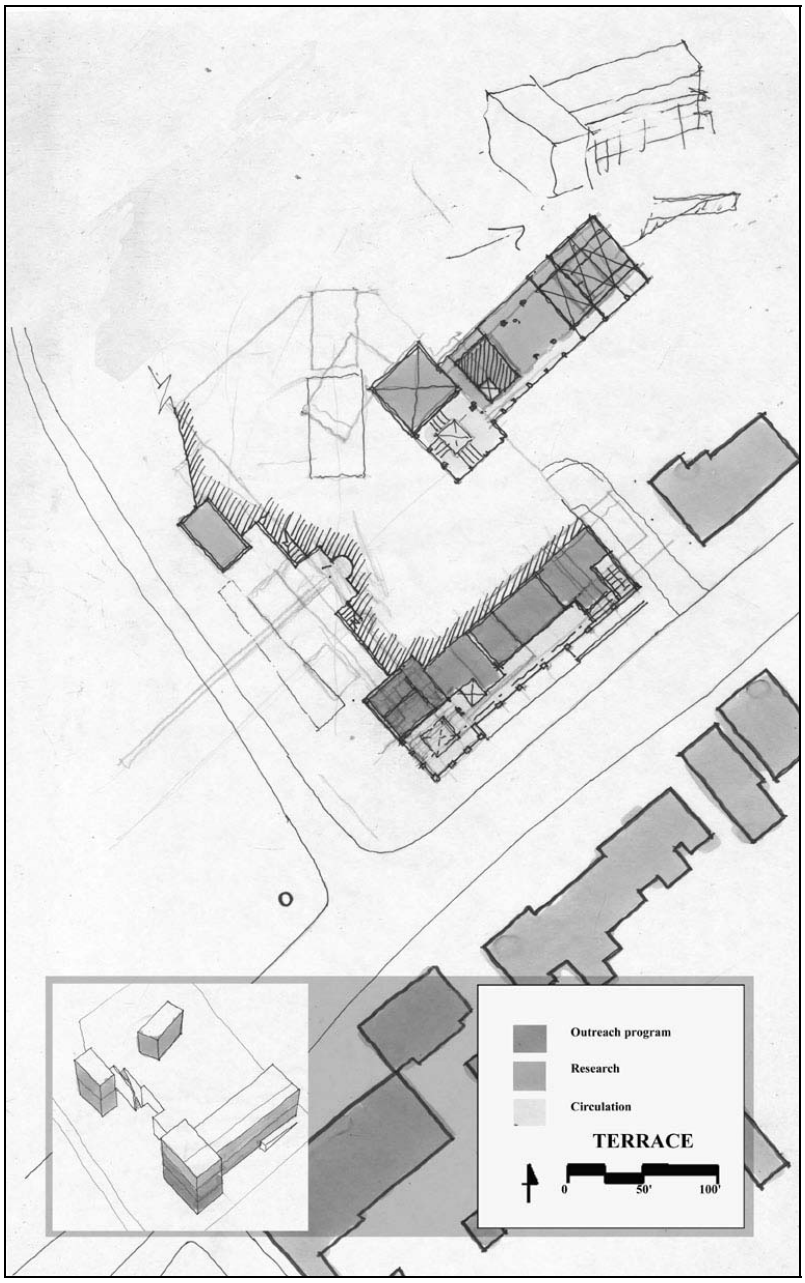

Figure 46: "Terrace" program configuration (plan and axon)

The "Terrace" strategy connects the city and park by serving as gateway to between the two. People enter from the street and exit above into a garden that extends into nature. The procession through the building accentuates the separation between the man-made world and nature. The reclaimed outdoor space, reduces the impact of surface parking and reclaims changes in topography.

“COURTYARD” PARTI:

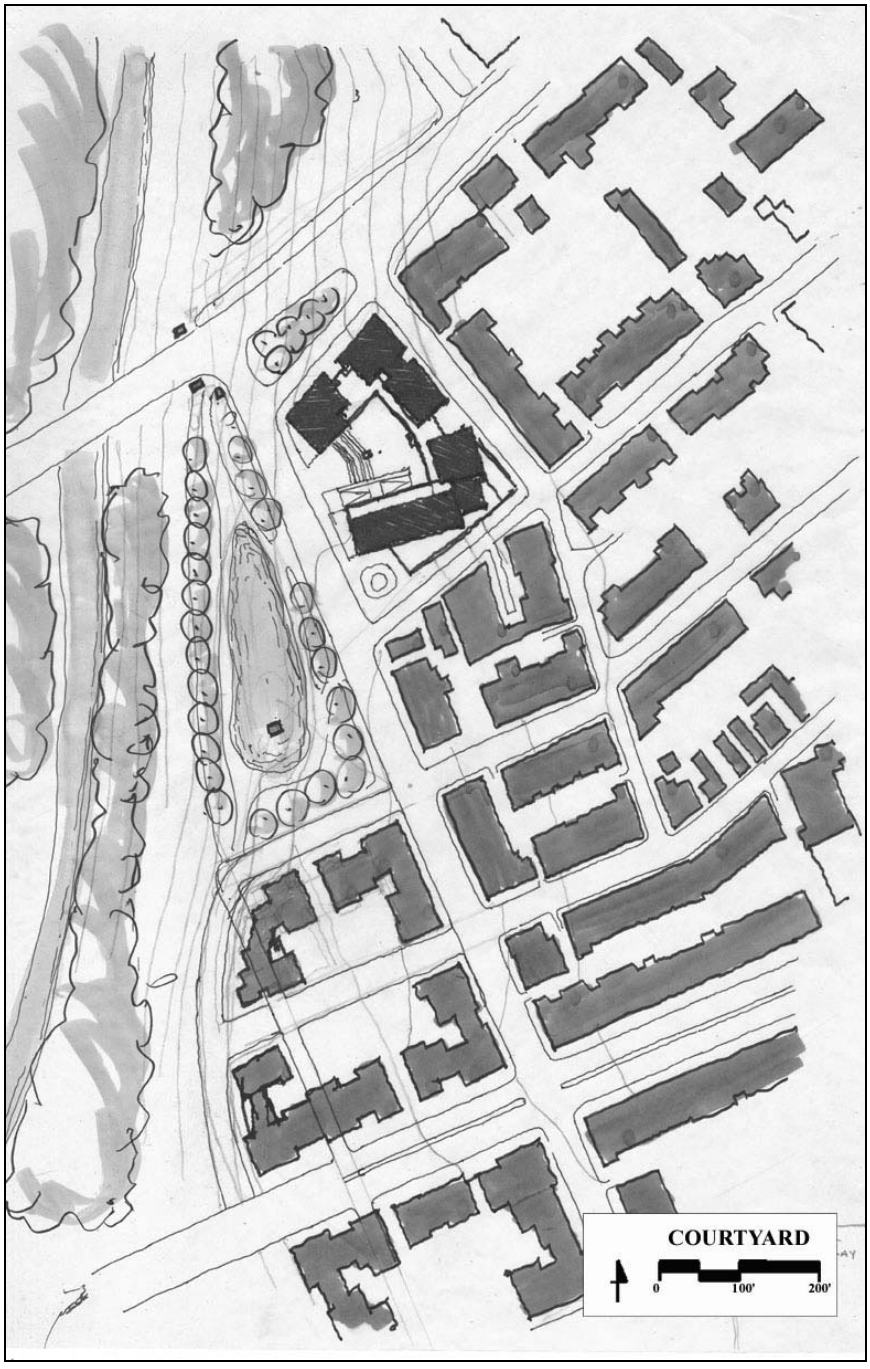

Figure 47: “Courtyard” Parti

Creates a street edge along Frederick Avenue
Places parking below raised courtyard
Wraps building program around courtyard oriented to park
Permits park to extend into courtyard
Most applicable to “Weave” urban design
Precedent: Salks Institute and UVA lawn

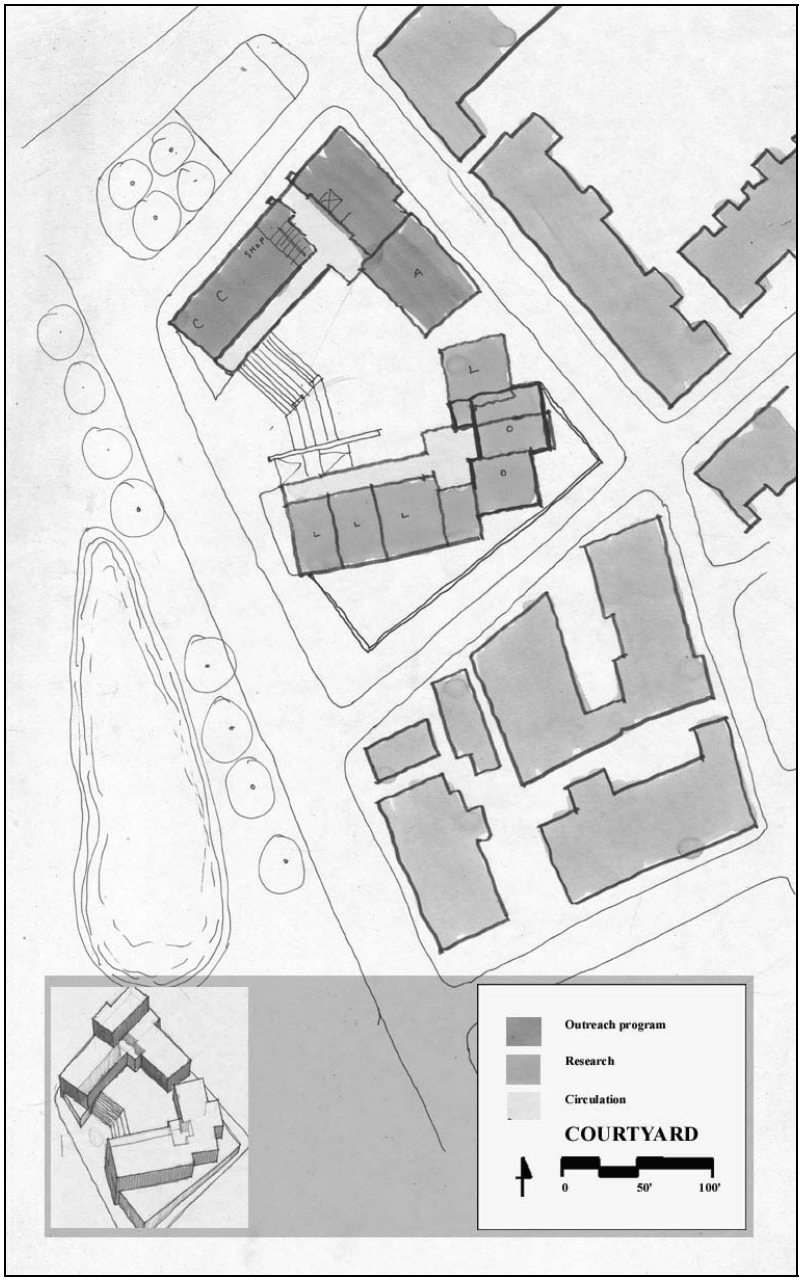

Figure 48: "Courtyard" program configuration (plan and axon)

The "Courtyard" scheme also uses an elevated public space to mask parking and handle changes in topography. The urban face of the building parti maintains the street edge on three sides. Nature and people enter the courtyard from the open side, oriented

to the Gwynns Falls. Research and outreach face each other across the courtyard, setting up a dialogue of partnership.

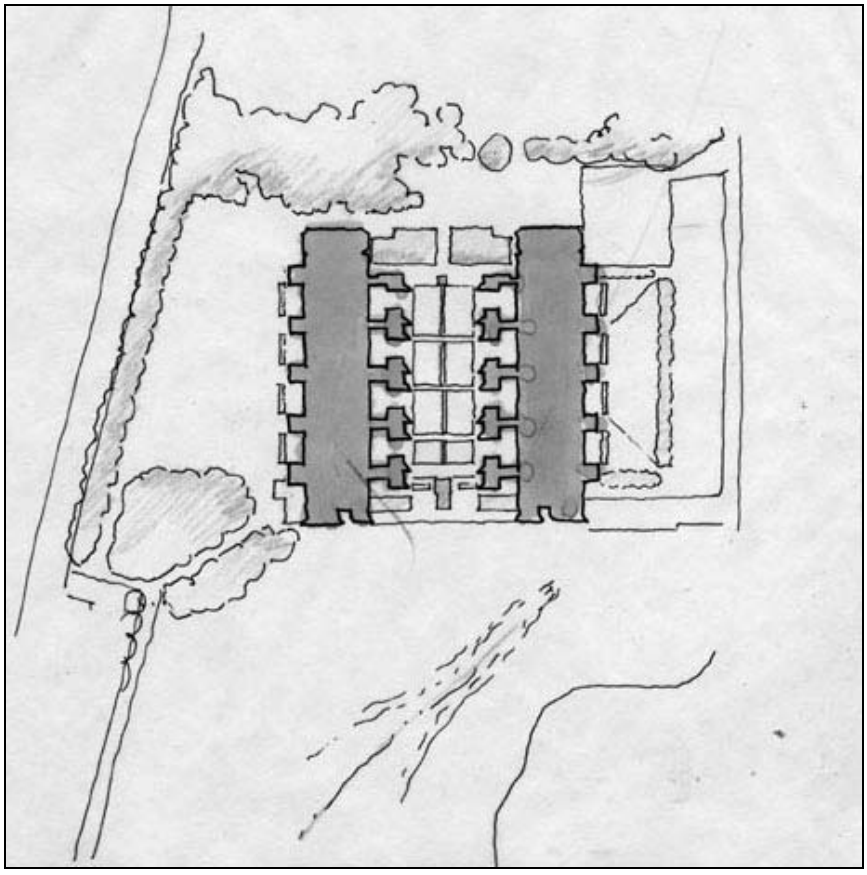

Figure 49: Salks Institute Site Plan, Louis Kahn, oriented to the Pacific Ocean

Louis Kahn's Salk Institute orients two parallel buildings towards the Ocean. The space between the buildings is activated by a small channel of water flowing towards the Pacific Ocean. This space becomes a place for people to capture sunsets over the ocean. The California weather and spectacular views to the sea offers an amiable place for casual meeting or retreat from the office.

“BRIDGE” PARTI:

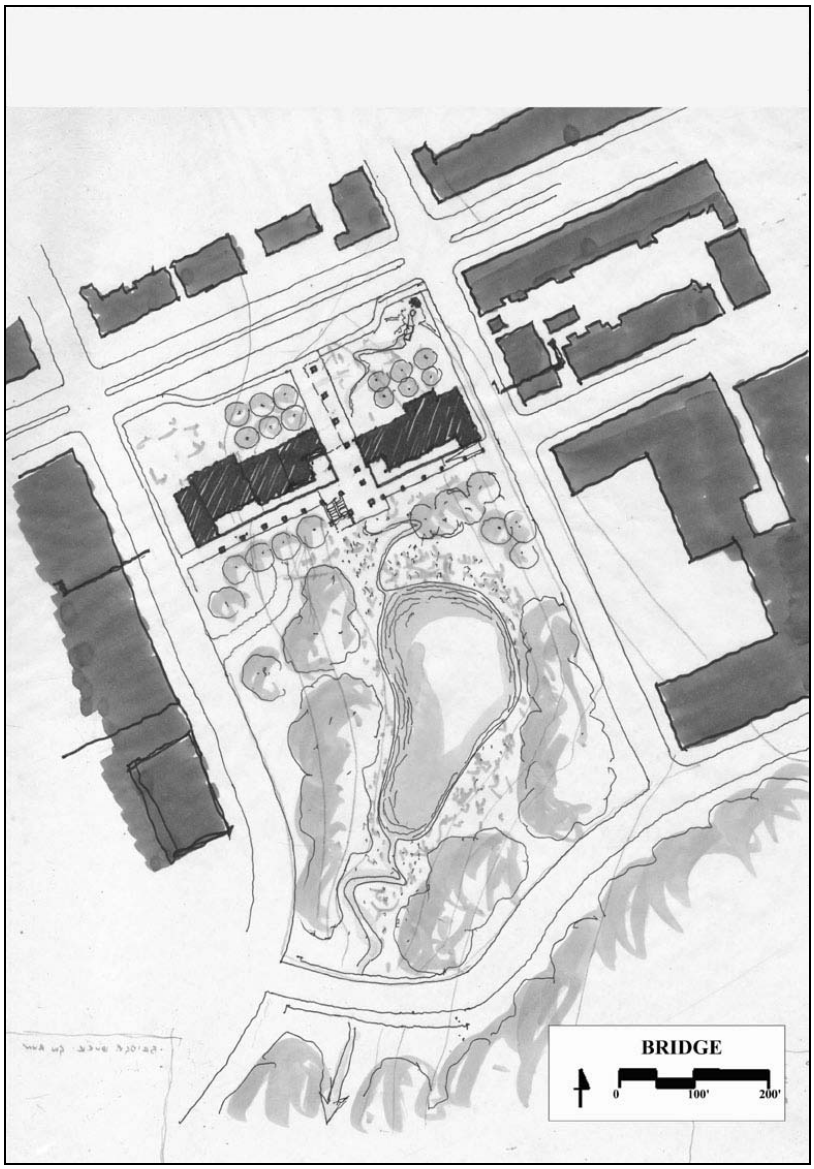

Figure 50: “Bridge” Parti

Creates a street edge along Wilkens Avenue
Places parking below elevated bar building
Extends building program along single south facing corridor
Allows park and Gwynns Run to flow beneath building
Most applicable to “Weave” urban design
Precedent: Chesapeake Bay Foundation

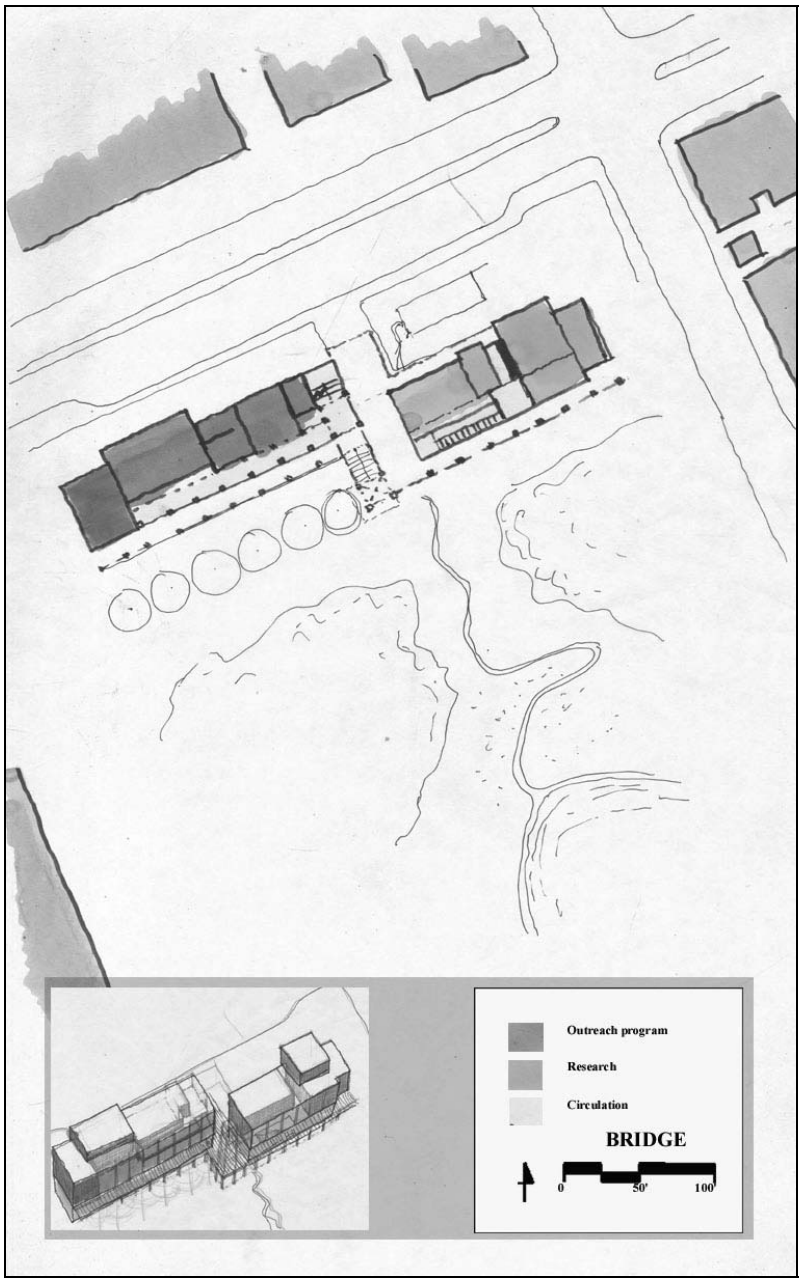

Figure 51: "Bridge" program configuration (plan and axon)

The "Bridge" divides the two programs along an elevated promenade overlooking a wetland or riparian landscape. The gap between the programs creates a gateway to nature. The urban side of the building rests on grade, creating a street edge, while the

landscape side of the building is elevated above nature. On site parking is tucked beneath the building and promenade.

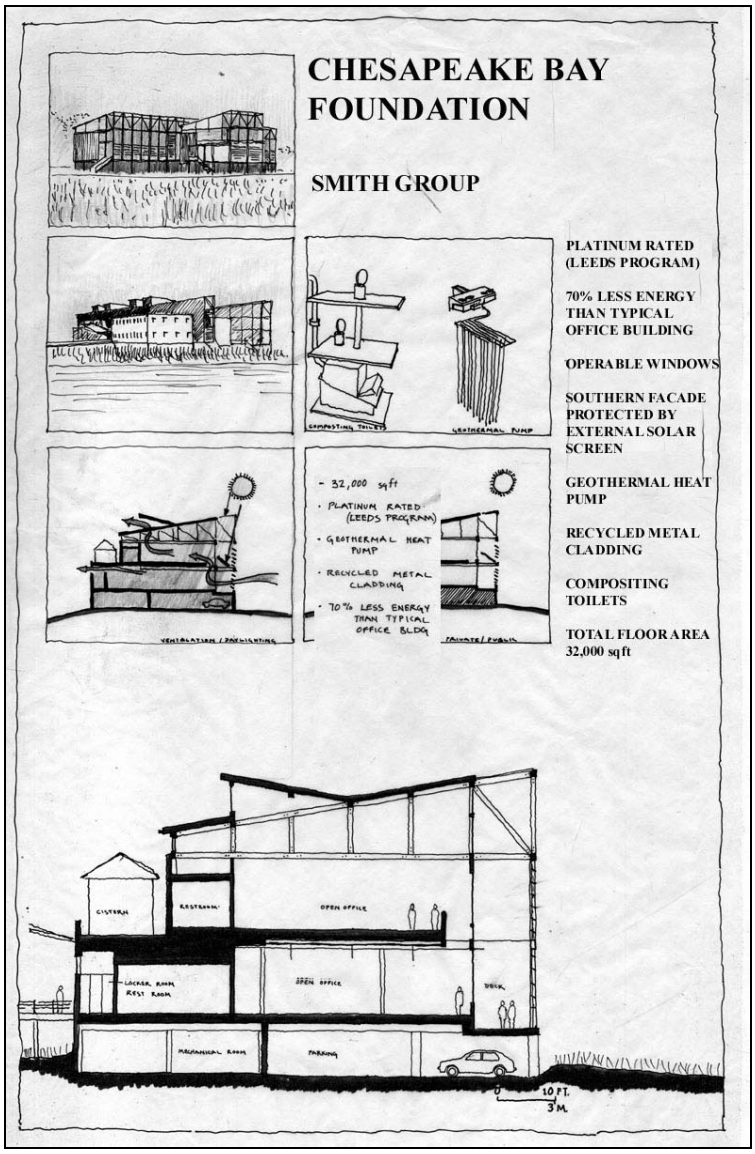

Figure 52: Chesapeake Bay Foundation: Building Precedent Analysis

The simple massing of the Chesapeake Bay Foundation offers a complex procession into nature. A bridge brings people from the parking lot to the building. Once inside the building the view of the Bay is insight. The ground floor projects out on a deck overlooking the coast.

NATURE FOUND

SITE SELECTION- FOCUS ON GWYNNS RUN

The choice of site selection was determined by a criteria focused on park connection (access to public transport, located approximately to existing trail system, site act as a gateway to the park, vistas, central location), ecology (location on brownfields, or infill, site orientation, site does not disrupt natural habitat, site is not inside riparian buffer, minimizes edge connections), and stewardship (visible location, centrally located to neighborhoods). The criteria addressed the established goals. While most of the formerly stated urban design strategies and site locations accommodated many of the criteria for site selection, the "excavation" design strategy and site selection provided a framework and catalyst for restoring nature to neighborhoods devoid of nature.

THE FRAMEWORK FOR A GREENER TOMORROW

Projects like the Santa Rosa Creek restoration confront the mistakes of earlier public policies to control water by channeling and burying these hydrological systems. It is now acknowledged by research and the efforts of a fore mentioned projects that daylighting is one of the best and most economical, at least in the long term, way to improve the quality of water. The working of natural processes far surpasses the artificial constructs of control designed by engineers of yester years.

The restoration of the Gwynns Run tributary not only attempts to restore ecological processes, but allows nature and open space to extend into the asphalt jungle of southwest Baltimore. While the Gwynns Run watershed extends northward to Lake

Ashburton, the focus of urban design is limited, because of time, to the neighborhoods of Southwest Baltimore, including but not exclusively Mill Hill and Shipley Hill.

Urban renewal, typically, is not an overnight phenomenon. This thesis proposes a phasing framework to guide the restoration process of the Gwynns Run. The themes concentrate on improving the quality of life, via job creation, improving commercial center, increasing housing options and expanding the variety of open space uses.

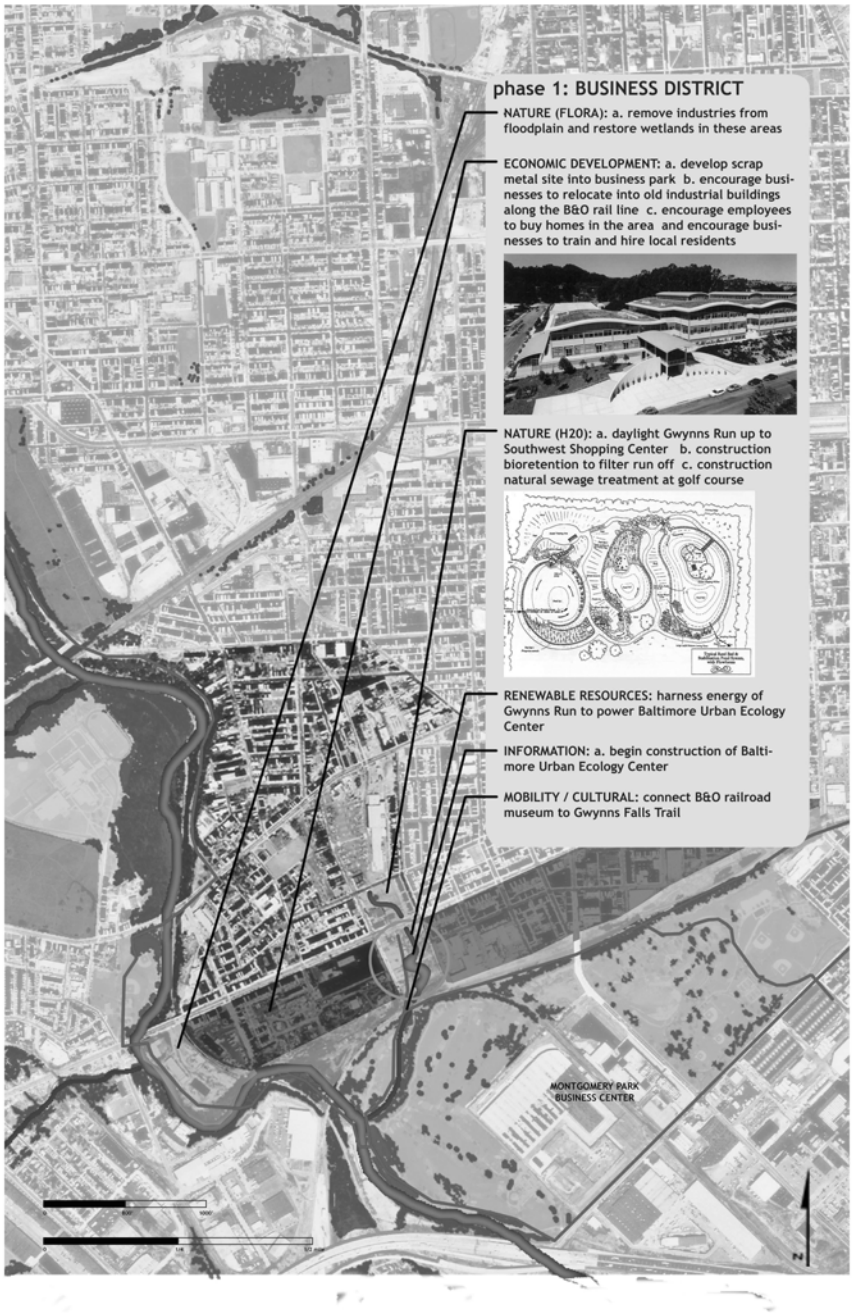

Figure 53: Phase 1: Business District

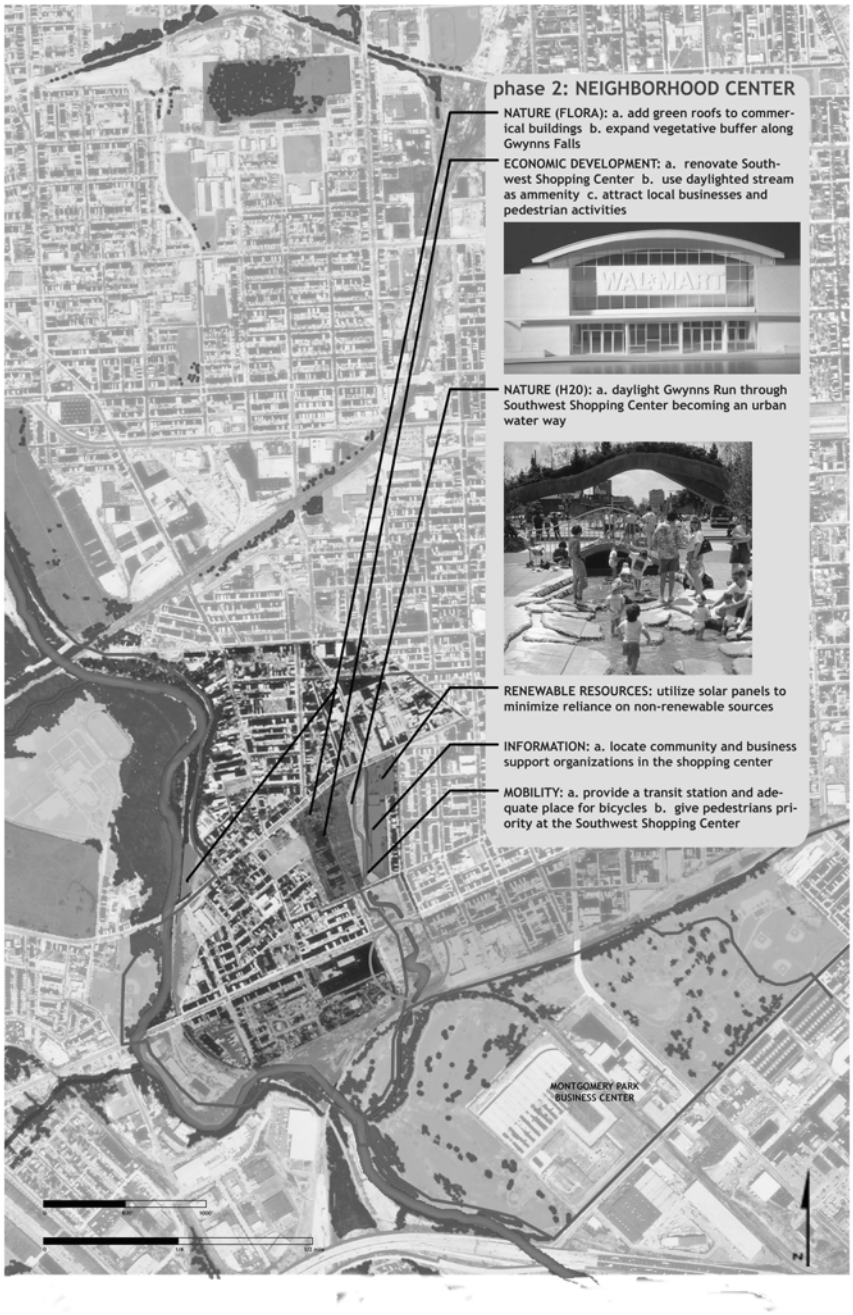

Figure 54: Phase 2: Neighborhood Center

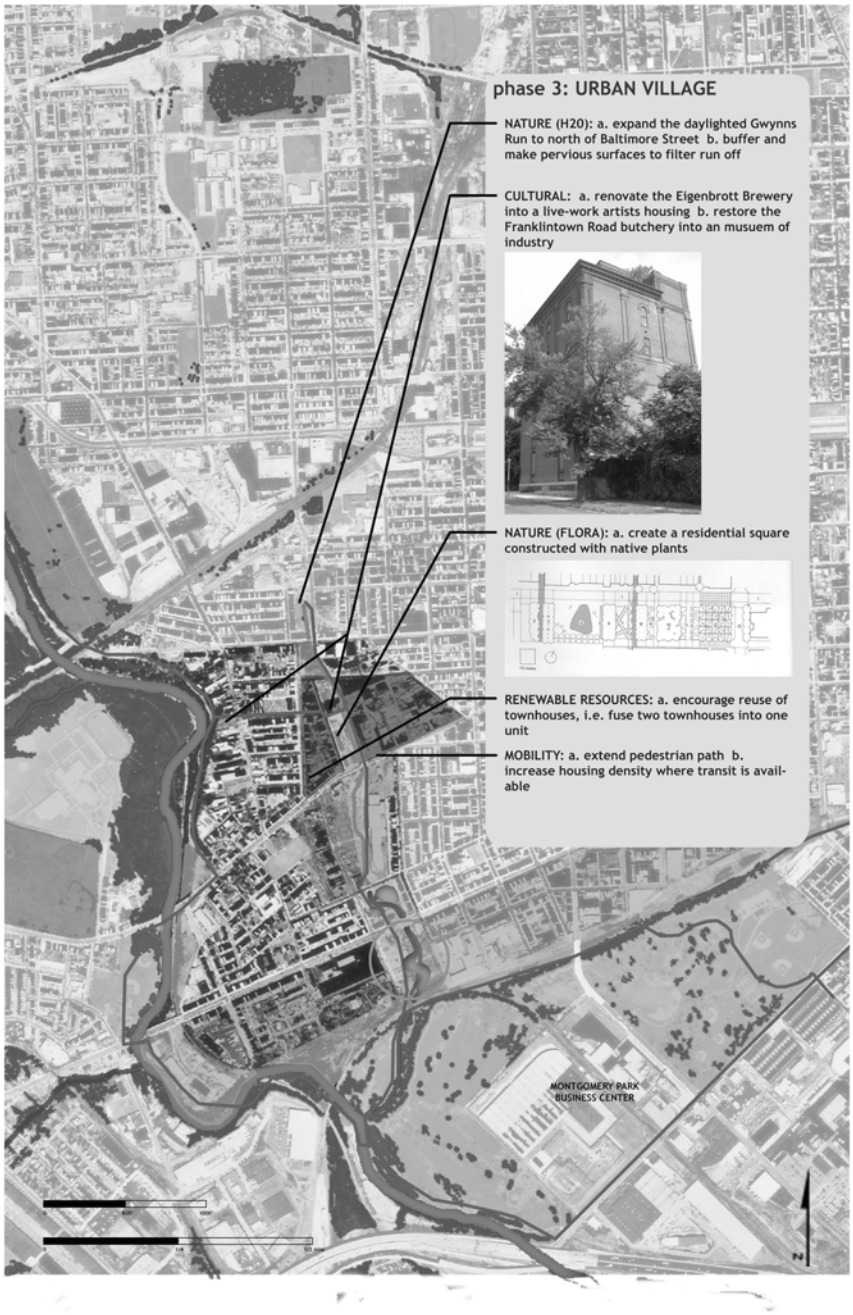

Figure 55: Phase 3: Urban Village

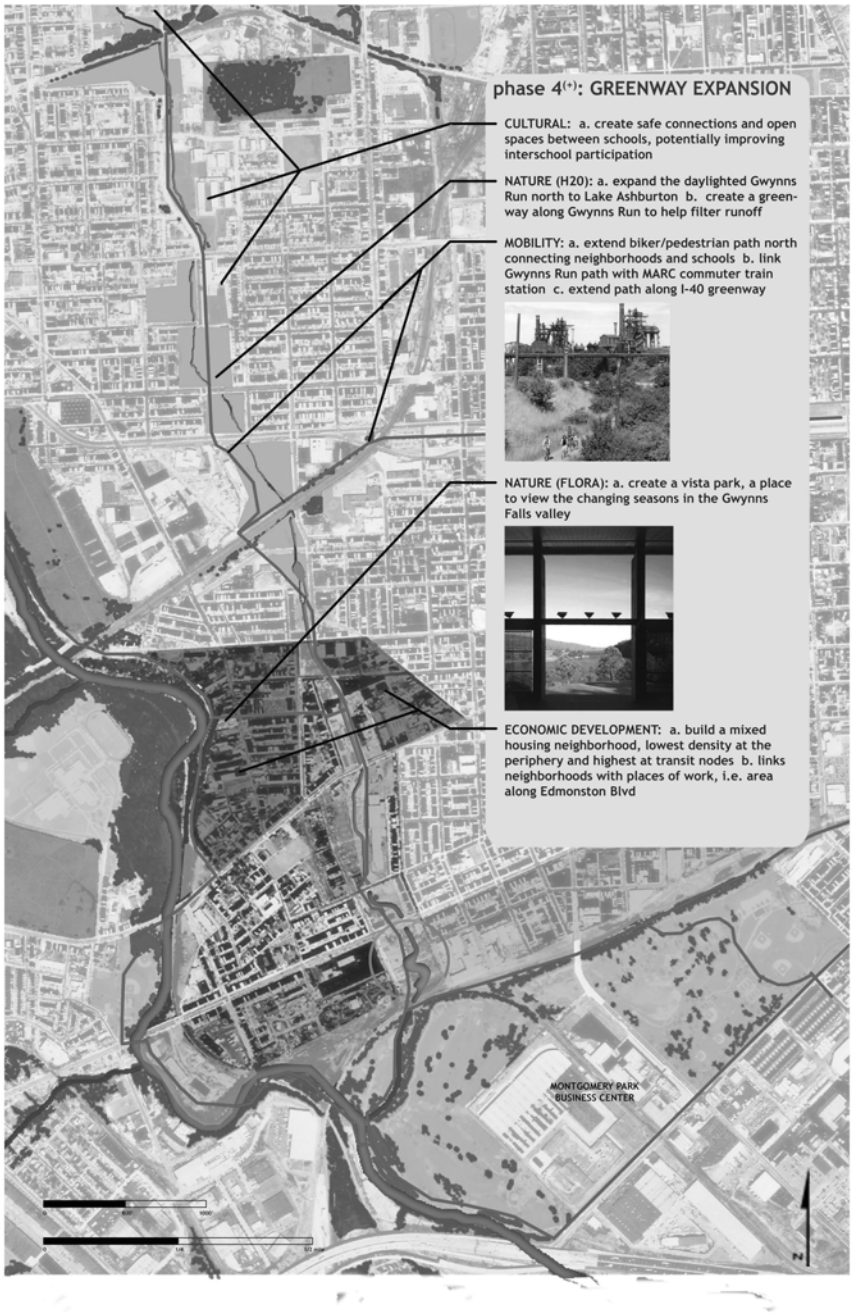

Figure 56: Phase 4: Greenway Expansion

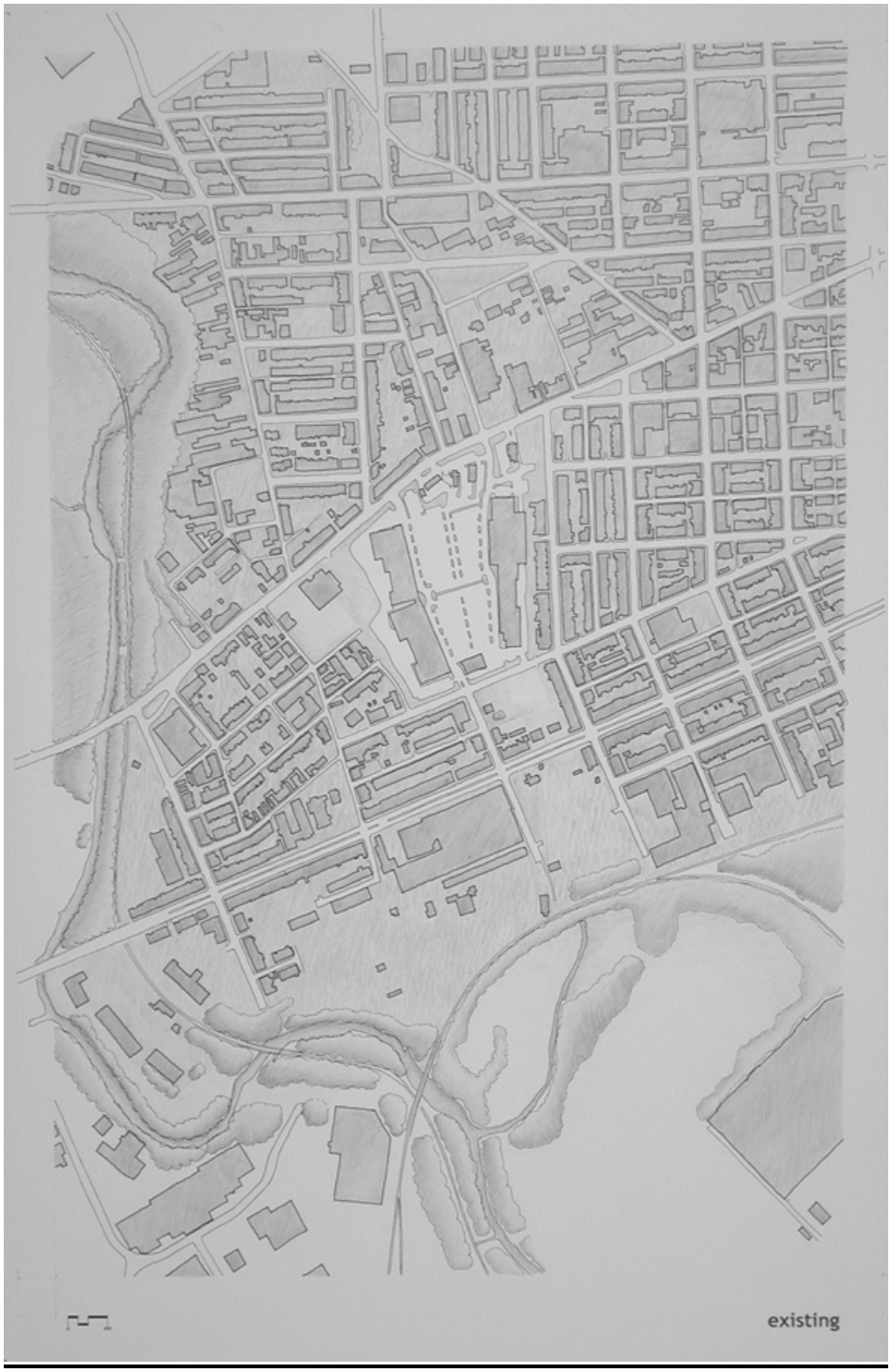

Figure 57: Existing Urban Fabric

Figure 58: Proposed Urban Design

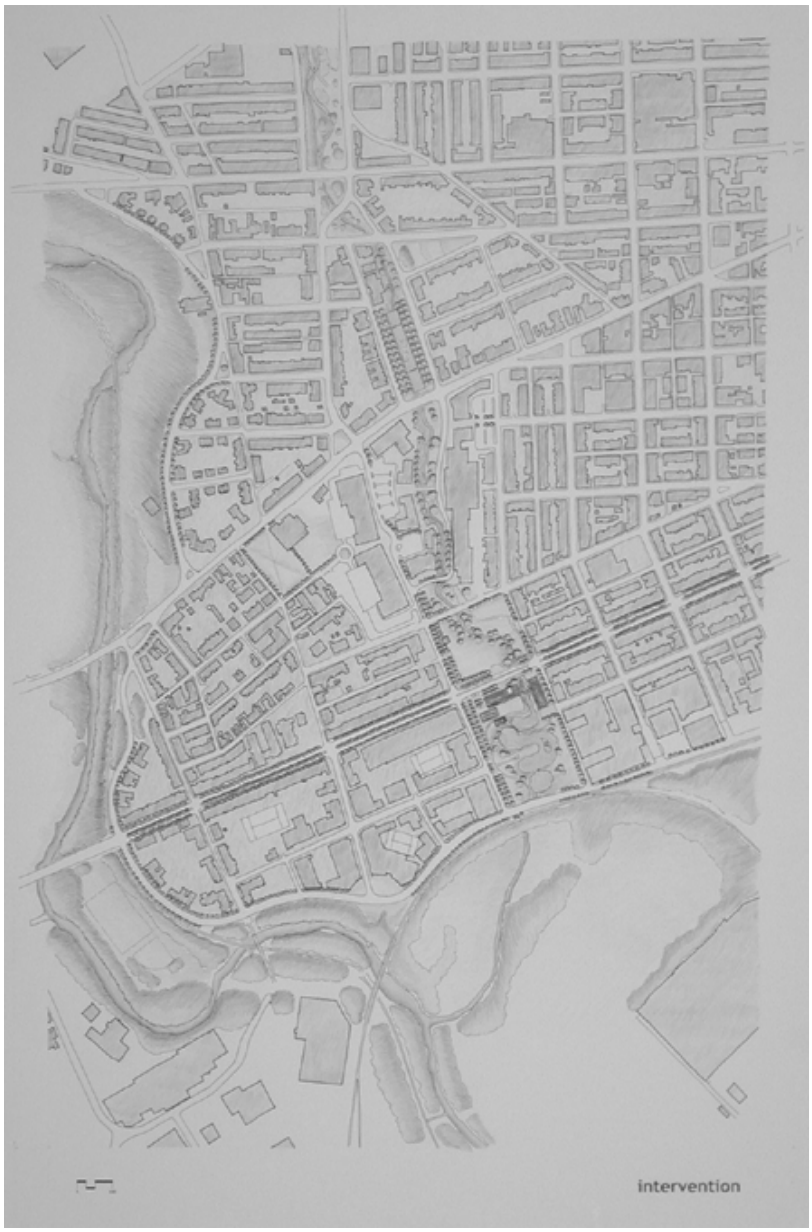

Figure 59: Intervention Urban Design

BIORETENTION

Bioretention is a chain of organic and inorganic natural processes that remove and add nutrients and minerals to the water, resulting in a more purified quality of water. The typical process is fourfold as seen in the following diagram.

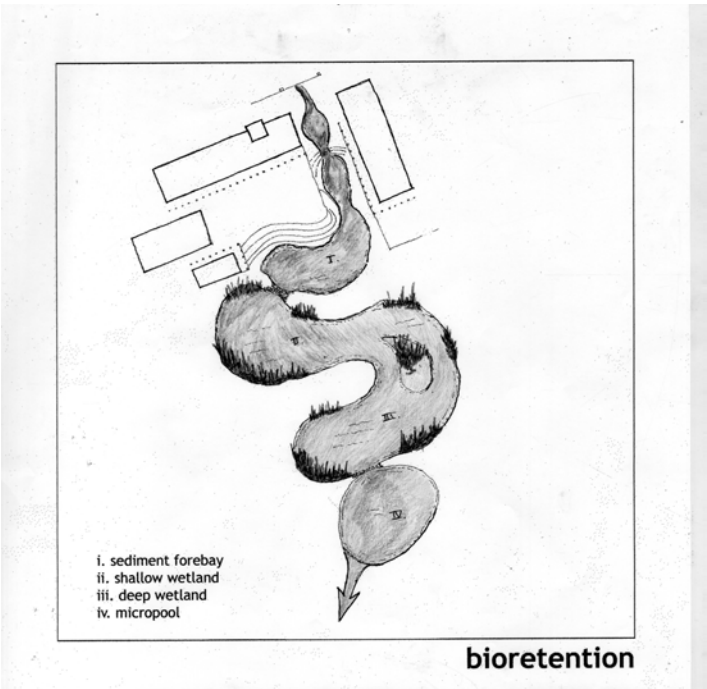

Figure 60: Bioretention System Diagram

The idea of an ecological park encourages the rich overlap of human activity and ecological processes. The necessity of wetland plant species and ponds are a visual amenity in addition to its functional necessity. Wetland plants blossom with a variety of natural hues and migratory birds come to find safe haven in the reeds along the stream. As city streets intersect the linear stream greenway, architectural and social events occur. Major streets, like Wilkens Avenue, become celebrated bridges over the Gwynns Run, indicating threshold between neighborhoods and connections with the landscape. Streets that dead end into the park, are celebrated places. These places are activated as nodes

along a path, entrance point to a recreational field, a café or social plaza and a place of bird watching. Where the Gywnns Run intersects the Southwest Shopping Center, a river walk atmosphere is developed. The pedestrian scaled retail center fronts the stream, creating a unique setting for commerce. The presence of the stream adjacent to the normal activities of everyday activities helps promote the awareness of human's tie to the natural world.

Figure 61: Site Plan

PARTNERSHIP (BUILDING PROGRAM)

In the exploration of a building parti the focus on a shared open space became an important attribute to the development of a sense of community and partnership among organizations. The clustering of synergistic programs, like the Baltimore Ecological Study, community center, exhibition hall and community development offices address the needs of a multifaceted approach to urban renewal. The three components, along with commercial space, centered around a communal lawn, oriented towards the bioretention wetlands, offers a spatial connection to each other. The connections intention is to promote collaboration and a sense of ownership among tenants. Around the courtyard a loggia unifies the architecture and creates a more human-scaled enclosure. The southern edge of the courtyard terraces down to the water edge, permitting a view from the courtyard to the parkland further south, and to allow natural light to illuminate the space and buildings.

Figure 62: Community Space

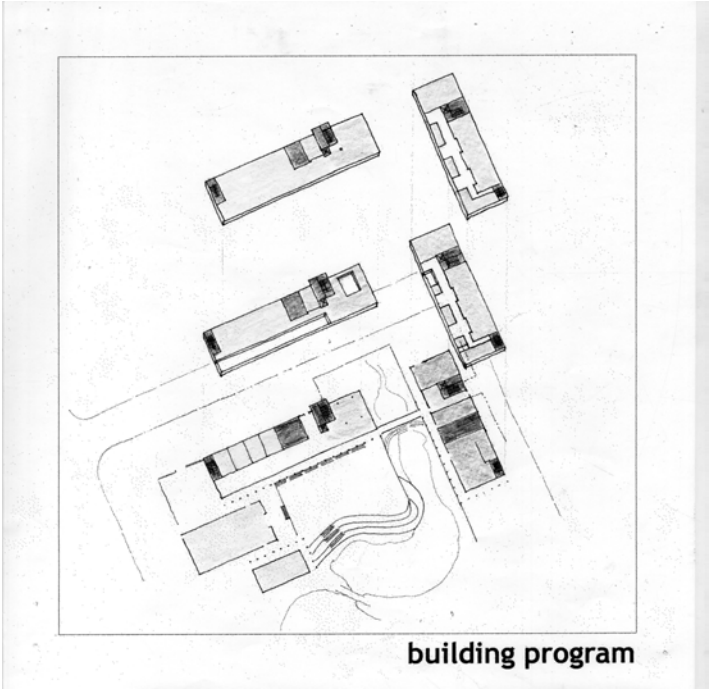

Figure 63: Building Program

The placement and language of the architecture celebrates the threshold between the city and landscape. The city fronts Wilkens Avenue as a civic institute, employing archetypal elements like a tower and colonnade to indicate its civic identity. The outer perimeter walls facing the city are clad in masonry materials with punched windows, reinforcing the building materials and solidity of the city. The courtyard elevations is a glass curtain wall system with an evident framing structure indicating the frame like quality of trees, as well as the transparent relationship between the building and users and nature. The community hall is the only building completely enclosed in brick and not bound in a loggia. This creates a sense of hierarchy and emphasizes the important role of community for renewal preservation of the city and waterways.

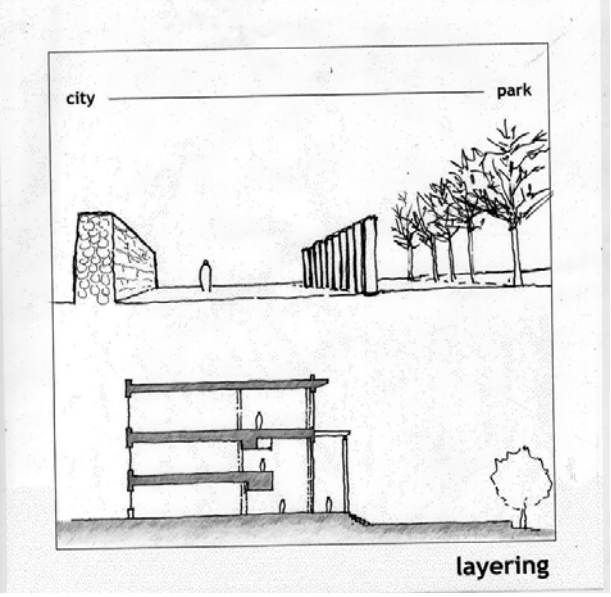

Figure 64: Building Layers

Figure 65: City Elevation

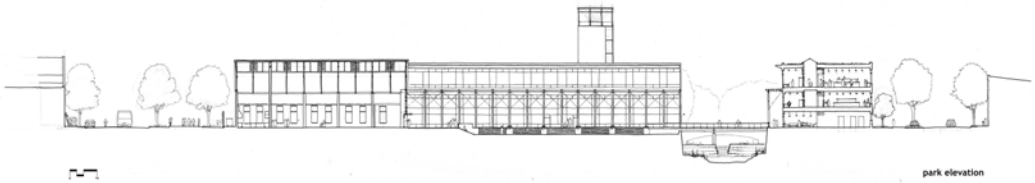

Figure 66: Park Elevation

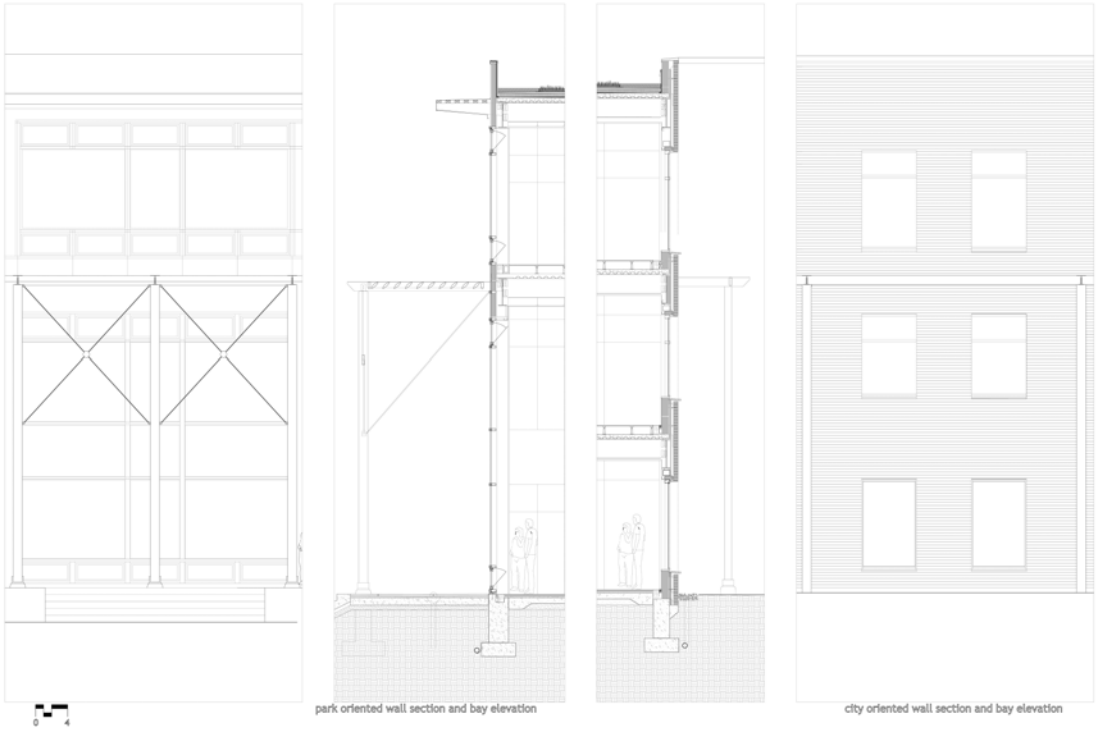

Figure 67: Wall Sections

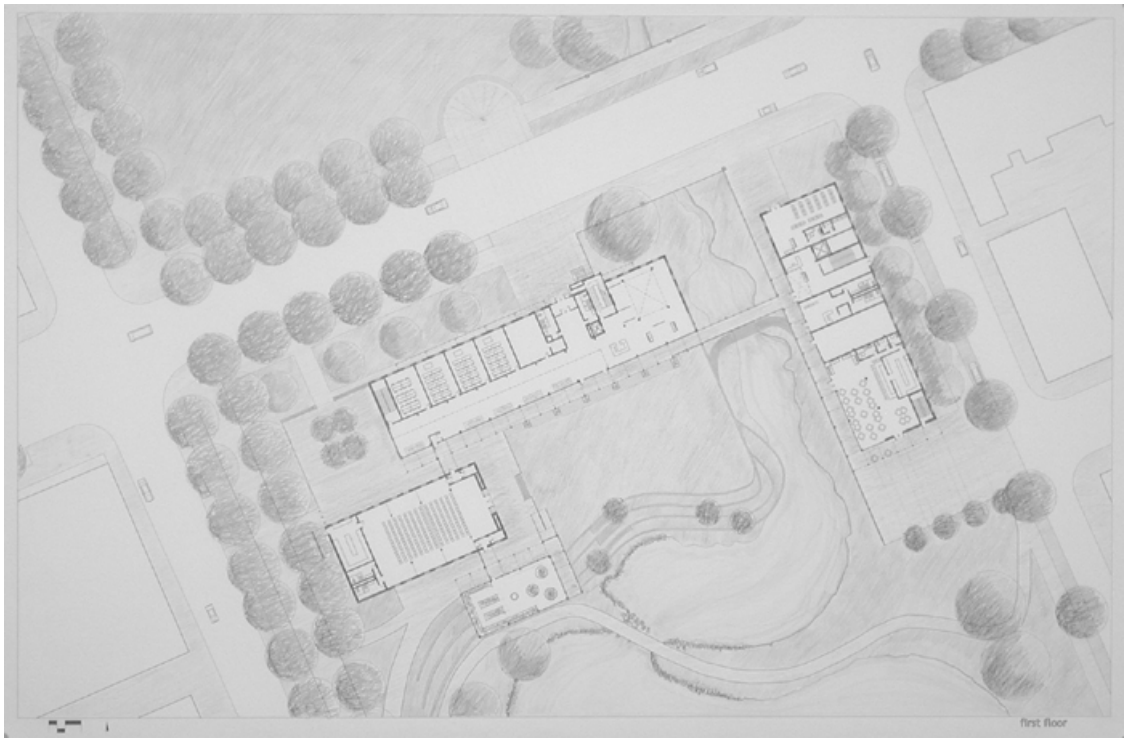

Figure 68: First Floor Plan

Figure 69: Second and Third Floor Plans

Figure 70: Site Section

Figure 71: View from Pedestrian Bridge

Figure 72: View of Greenhouse

Figure 73: View of Plaza

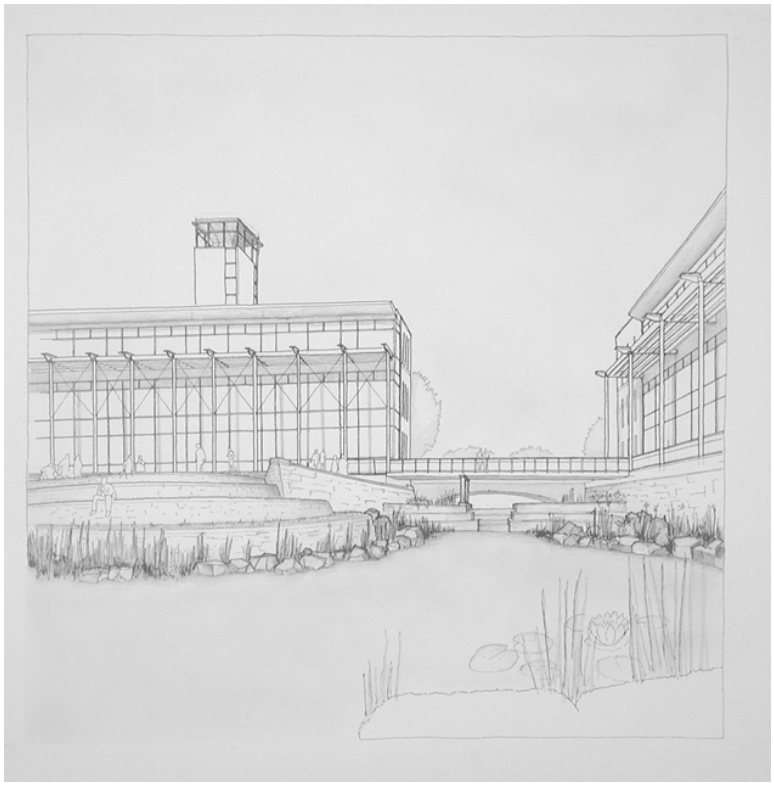

Figure 74: View of Stream

Figure 75: View of Street Facade and Tower

Figure 76: Community Hall

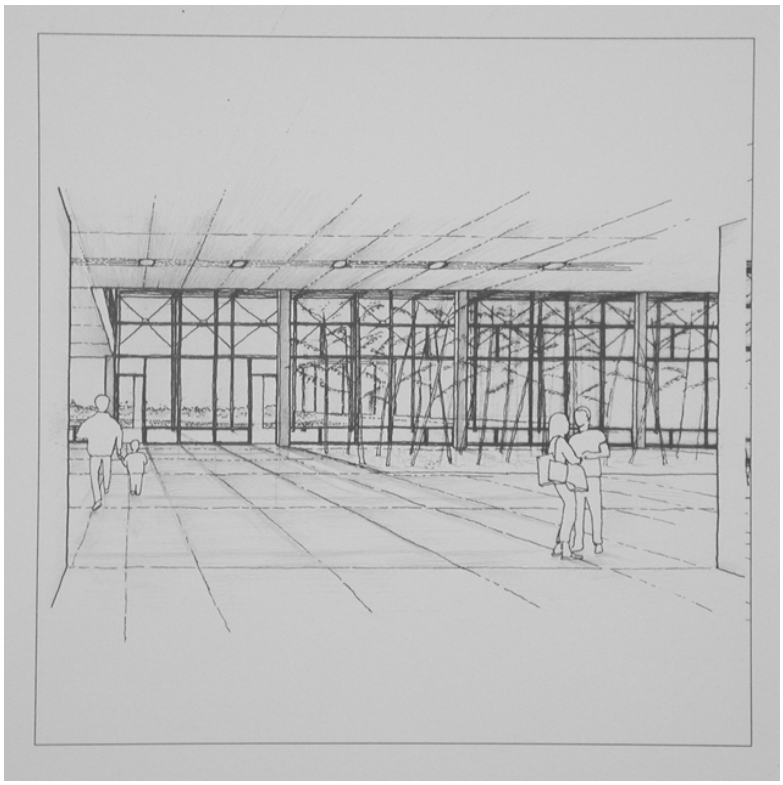

Figure 77: View of Lobby

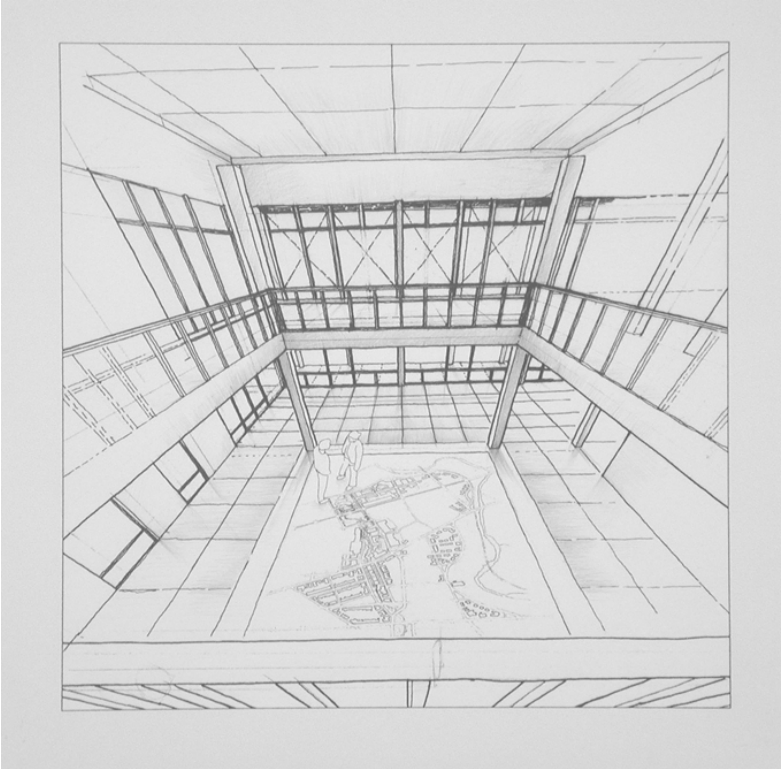

Figure 78: View of Exhibition Hall

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